E Pluribus Unum: An Evaluation of Student Engagement and Learning in the College Marching Band

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E PLURIBUS UNUM:
AN EVALUATION OF STUDENT ENGAGEMENT AND LEARNING IN THE COLLEGE MARCHING BAND

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Abstract

Student engagement has been associated with a range of desirable outcomes in the undergraduate experience (Astin, 1993, Pascarella & Terenzini, 2005) and music participation has been shown to facilitate important personal and social development among its participants (Hallam, 2010). Despite this, no study has been conducted to evaluate the potential benefits of participation in one of the largest and most visible student organizations on campus: the college marching band. The purpose of this quantitative evaluation was to determine whether marching band students express distinctive patterns of engagement within their respective communities as compared with their non-band peers. Items and scales from the National Survey of Student Engagement (NSSE) were administered to marching band members (n=1,882) at 20 participating universities with National Collegiate Athletic Association (NCAA) Division-I football programs. Data were compared with a sample of general undergraduate (non-band) responses (n=6,095) from the same institutions provided by the NSSE Institute. Findings suggested that band students are more engaged with diverse peers along racial, ethnic, political, ideological, and religious lines (p<.01; Cohen's d=0.26) and they are more reflective in their learning as evident in their willingness to imagine another's perspective and reevaluate their own views (p<.01; Cohen's d=0.19). Compared with non-band peers, marching band members indicated greater personal social responsibility on an array of vectors (p<.01; Cohen's d=0.36) including: developing a personal code of values and ethics, understanding people of other racial and ethnic backgrounds, understanding themselves, learning effectively on their own, voting in local or national elections, contributing to the welfare of their community, and solving complex real-world problems. After controlling for a range of pre-college and co-existing variables, marching band membership remained the strongest predictor of these desirable outcomes (β=0.172, p<.01).

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CHAPTER ONE: INTRODUCTION

Overview

A lively debate exists within colleges and universities regarding the aims and objectives of higher education. A recurring question is whether our students are being adequately prepared for lives as thoughtful and responsible citizens (Bok, 2005; Colby, Ehrlich, Beaumont, & Stephens, 2003; Wood, 2012). Supporters of this priority observe that students who engage with diverse peers in collaborative pursuits during the undergraduate years are exposed to new ways of perceiving and understanding the world, and they may develop enhanced cultural awareness, sensitivity, and appreciation of their differences (Eyler & Giles, 1999; Gurin, Dey, Hurtado, & Gurin, 2002). Moreover, these students may exhibit important gains in critical thinking, problem-solving, and interpersonal skills (Kuh 1995). Experiences with diversity offer an array of immediate educational benefits, and they may lead to greater levels of engagement beyond graduation as students learn to become responsible citizens in an increasingly multicultural society (Gurin, Nagda, & Lopez, 2004; Pascarella & Terenzini, 2005).

This dissertation attempts to quantify the types and degrees of student engagement among college marching band members based upon the assumption that meaningful and sustained engagement with diverse peers toward collaborative objectives can lead to an array of desirable outcomes. Engagement is measured through selected portions of the National Survey of Student Engagement (NSSE). Since the first administration of the NSSE in 2000, data have been collected from over 3 million students representing approximately 600 colleges and universities. The survey addresses a range of student engagement characteristics including constructs related to engagement with diversity, higher order learning, reflective learning, and personal social responsibility. Although dozens of studies have been conducted to evaluate the relationship

between engagement and characteristics including race, gender, SAT/ACT score, student athlete status, and Greek life (National Survey of Student Engagement, 2014), no studies have been conducted to evaluate the potential benefits of participation in one of the largest and most visible student organizations on a college campus: the marching band.

Students who participate in the college marching band face a range of cognitive, expressive, physical, and environmental challenges while preparing material for evaluation by friends, faculty, alumni, and community members. The conditions under which they do so may constitute a specific environmental niche in higher education (Bronfenbrenner, 1994). Students engaged in this pursuit typically devote over 200 hours toward the attainment of their shared objectives in a single fall semester – as many hours as a full course load. Along the way, band members are placed in contact with diverse peers that may shape their understanding of, and commitment to, positive and meaningful engagement with others in their communities. The purpose of this study is to identify and evaluate some of the engagement characteristics that may be common among participants in the college marching band.

Problem Statement

Student engagement, defined by Kuh (2009) as "the time and effort students devote to activities that are empirically linked to desired outcomes of college *and* what institutions do to induce students to participate in these activities" (p. 683), is a well-established priority in higher education in facilitating a range of favorable outcomes including important gains in critical thinking, problem-solving, and interpersonal skills (Kuh 1995) as well as greater appreciation of diversity and capacity for responsible citizenship (Pascarella & Terenzini, 2005). Despite the widespread emphasis on student engagement in facilitating important developmental growth in

higher education (Kuh, 2008; Kuh, 2009; Goodman, Baxter Magolda, Seifert, & King, 2011) and band participation in promoting intellectual, personal, and social skills (Hallam, 2010), no major studies have been conducted to evaluate the types and degrees of student engagement that may be evident among participants in the college marching band. The purpose of this study was to evaluate potential differences between marching band students and non-band students on engagement in the college experience as measured by an array of related items and constructs from the National Survey of Student Engagement.

Rationale

American higher education is under assault on several fronts. Critics contend that a college degree is too costly (Fergus, 2014), and a growing number question whether the primary goals of a post-secondary education could be met more effectively or efficiently through flexible online offerings rather than in traditional brick and mortar institutions (Selingo, 2012). Still others assert that colleges are not adequately preparing students to be successful in their respective careers after graduation and blame faculty for ignoring the larger priority of preparing graduates for lives as productive and engaged citizens in an increasingly diverse democracy (Bok, 2005; Colby et al., 2003). At the root of the conflict are important questions about what fundamental skills students should develop as part of a college education and what opportunities and experiences will enable them to cultivate those skills.

Over the past 25 years, college tuition has increased at four times the rate of inflation (Cronin & Horton, 2009), and student loan debt in the United States now exceeds one trillion dollars (Cauchon, 2011). The situation has become so tenuous that President Obama proposed strong reductions or eliminations of federal assistance to colleges that fail to control tuition increases

(Lewin, 2012). At the same time, an increasing number of students are turning to distance or online learning opportunities. Nearly a third of all American college students were enrolled in an online course in 2011 (Sheehy, 2013), and institutions like the University of Phoenix Online Campus, with 307,900 undergraduates, now dwarf former juggernauts like Ohio State University's 56,867 students (Snyder & Dillow, 2013). Although online offerings may be more convenient, it is not yet clear whether the benefits are comparable.

Students who do choose to pay the high cost of tuition at traditional institutions often incur significant student loan debt in the process of earning their degrees (Martin & Lieber, 2012). These students share an expectation that they will become more competitive, more satisfied, and more successful in their careers as a result of their education (Association of American Colleges and Universities, 2002). However, there is mounting evidence that this does not occur.

In *Academically Adrift: Limited Learning on College Campuses*, Arum and Roksa (2011) tracked over 2,300 students from a wide range of four-year institutions between the fall of 2005 and the spring of 2009 with alarming results. More than 45% of the students exhibited no significant gains in critical thinking and complex reasoning during the first two years of college, and more than a third of the students demonstrated no significant improvement in these same skills over their entire undergraduate experience (Arum & Roksa, 2011). These findings are consistent with Educational Testing Services data indicating that only 6% of seniors demonstrate competence in critical thinking while 77% are deemed not proficient (Association of American Colleges and Universities, 2005).

This comes at a time when employers are asking college graduates to accept greater responsibility and incorporate broader skills than in the past. In a survey of 302 private and non-profit companies commissioned by the Association of American Colleges and Universities, a

majority of employers asserted that colleges and universities need to do a better job providing students with a variety of skills beyond the technical tasks required for their work. Four out of five respondents agreed that colleges have not sufficiently prepared students to think analytically and critically, and 71% were dissatisfied with the level of collaboration exhibited among college graduates, particularly within diverse group settings (Hart Research Associates, 2010).

Former Rhodes Scholar selection committee member, Heather Wilson (2011), lamented the narrow specialization of today's college graduates who appear "less able to grapple with issues that require them to think across disciplines or reflect on difficult questions about what matters and why" (par. 3). A report commissioned by the Secretary of Education found that many college graduates have not mastered the thinking skills expected as a result of a higher education, and far too many are entering the workforce without the broader capabilities required by their employers. Higher education, the report asserted, has not adapted to the expanding educational requirements of our knowledge-based economy. This is increasingly problematic for a country that has grown to rely upon the collaborative environment in colleges and universities for the cultivation of "an educated and informed citizenry" as the backbone of our successful democracy (Secretary of Education's Commission on the Future of Higher Education, 2006, p. xii).

In addition, despite agreement among 93% of students and 97% of academic professionals that a college education should prepare students for contributions to the community upon graduation, a survey of 24,000 college students found that only 33% indicated their civic awareness had improved during college and only 32% believed their overall college experience had provided them with the necessary skills to make improvements to the broader society (Dey, Barnhardt, Antonaros, Ott, & Holsapple, 2009). According to a Cooperative Institutional Research Program (CIRP) survey conducted by the Higher Education Research Institute (HERI),

only 25% of college seniors believed their understanding and appreciation of problems facing communities had improved during college. (Finley, 2012). Perhaps not surprisingly, the United States now ranks 139th in voter participation out of 172 established world democracies (McCormick Tribune Foundation, 2007).

The Association of American Colleges and Universities 2002 report, *Greater Expectations*, asserted that students have failed to become more adaptive to new environments and integrate information from multiple sources. According to the report, today's successful students must be able to work in complex environments with diverse colleagues. In addition, the report specified that knowledge must extend beyond core academic requirements to include experiences in "the human imagination, expression, and the products of many cultures" as well as a "deep understanding of one's self and respect for the complex identities of others, their histories, and their cultures" (Association of American Colleges and Universities, 2002, p. xii). And yet, only 27% of college seniors believe their knowledge of people from different races and cultures has become "much stronger" as a result of their higher education (Finley, 2012).

Understanding and appreciating racial and ethnic differences is particularly important in today's evolving cultural landscape. Data from the 2010 Census confirm that the United States is becoming increasingly diverse. During the past decade, Asian Americans experienced the highest growth rate of any racial group, and half of the entire population increase in the US occurred among Hispanic Americans. By contrast, the lowest growth rate occurred in the category of Americans that classify themselves as "white." Adding to the cultural complexity, 15% of all marriages are now classified as mixed race, and the number of Americans identifying themselves as mixed race has increased by 32% since 2000 (Humes, Jones, & Ramirez, 2011). According to a report by the Brookings Institution based on the 2010 Census, the increasing

number of children of color will lead inevitably to a more diverse work force, which will in turn create new social and political challenges for the entire country (Frey, 2011).

These challenges will need to be met through targeted programs in higher education aimed at the cultivation of a thoughtful and engaged citizenry. According to the National Task Force on Civic Learning and Democratic Engagement (2012), "Education plays a fundamental role in building civic vitality, and in the twenty-first century, higher education has a distinctive role to play in the renewal of US democracy" (p. 2). The task force further asserted that America's colleges and universities are critically important "laboratories for civic learning and democratic engagement" (National Task Force on Civic Learning and Democratic Engagement, 2012, p. 2).

The implications for American democracy may be dire if U.S. colleges and universities are unable to adequately prepare graduates for successful integration as responsible and engaged members of society. With the increasing racial and ethnic diversity comes a requirement that all Americans commit to the adoption and advancement of "shared values and ideals" in order to nurture and sustain our multicultural democracy (Ravitch, 2000, p. 466). It is unclear whether the general undergraduate curriculum alone is sufficient to prepare graduates for the important challenges that lie ahead.

Despite lingering concerns about the effectiveness of a college education and the apparent failures of our current higher education system to prepare students for active civic engagement, Americans still seem to believe that the benefits of a college education are worth the price. Between 1999 and 2009, enrollment in U.S. colleges and universities increased by 38%, and the total number of college students rose from 14.8 to 20.4 million (U.S. Department of Education, 2011). Given the increasing number of students receiving a higher education, and the soaring costs and great expectations associated with this commitment, colleges and universities would be

wise to explore and support every opportunity for students to work closely with diverse peers toward the collaborative achievement of complex educational objectives.

Recent research suggests that a range of desirable educational outcomes may result from the collaborative process of creating music. Benefits associated with music participation include the development of community ethics (Miksza, 2010), opportunities for the exchange of ideas in meeting group objectives (Kokotsaki & Hallam, 2007), and the ability to work cooperatively with others who do not necessarily share a common cultural heritage or set of ideological beliefs (Dagaz, 2010). The conditions for the cultivation of these important objectives in higher education are hypothetically available to participants in the college marching band, but no study has yet been conducted to evaluate this theory.

Informal pilot studies to identify potential distinctions between members of the Boston College Marching Band and their non-band peers included an administration of the Sternberg Triarchic Abilities Test (Chooi, Long, & Thompson, 2014) and the 2009 National Survey of Student Engagement (Healey, 2009). Although the results of the Triarchic Abilities Test were less conclusive, patterns in the resultant NSSE data suggested that marching band participants at Boston College may be more engaged with diversity, more thoughtful about their education, and more willing to become involved within the broader society than their non-band peers. These observations were the basis for the theory of this investigation and the corresponding selection of related constructs developed by Kuh (2003a) and Nelson Laird, Shoup, and Kuh (2005).

Purpose of the Study

The purpose of this study was to determine whether college marching band participants differ in the pattern and scope of their engagement from their non-marching band peers as reflected in

their responses on selected constructs from the National Survey of Student Engagement (NSSE) related to engagement with diversity, student learning, and personal social responsibility. Research in this field is limited with respect to band participation. If positive relationships between marching band participation and enhanced student engagement are identified, the results of the study may be useful in underscoring the importance of supporting and expanding college marching band programs as a means to facilitating important outcomes of a higher education.

Positive student engagement is an important priority for colleges and universities, and the well-established benefits may well prepare students for success beyond graduation as productive citizens in an increasingly diverse society (Kuh, 2009; Torres, Jones, & Renn, 2009). Typical among university mission statements is the Boston College objective to foster the "personal formation of its undergraduate, graduate and professional students in order to prepare them for citizenship, service and leadership in a global society" (Boston College Board of Trustees, 1996, par. 3). If a primary objective of a college education is to produce thoughtful, responsible, and engaged citizens, all students must be presented with appropriate educational challenges and opportunities to develop these skills during the undergraduate years.

This thesis proposes that the college marching band experience provides students with opportunities for deep, meaningful, and sustained engagement. Through participation in the band, students are provided with the types of conditions that the higher education literature suggests will enable them to learn to work closely with diverse peers toward the attainment of collaborative and educationally purposeful goals requiring important cognitive and technical skills (Pascarella & Terenzini, 2005). Although a primary objective of the college marching band is the preparation of musical and visual performance material, the process requires a high degree of reflection and interdependence. It is hypothesized that students who are immersed in

these experiences may indicate greater levels of engagement than their non-band peers. If the hypothesis is confirmed, the results may provide valuable leverage in promoting greater recognition and support for marching band programs in our colleges and universities.

Hypothesis

Students who participate in a college marching band are more likely than their non-band peers to indicate behaviors consistent with thoughtful and responsible engagement within their respective campus communities.

Research Questions

To investigate the hypothesis, this study explored the following questions:

1. To what extent do marching band participants differ from non-marching band participants on selected measures of student engagement from the National Survey of Student Engagement?
2. To what extent are there differences in measures of student engagement between marching band and non-marching band students during first-year and senior year?
3. Within marching band and non-marching band populations, to what extent do first-year students differ from senior students on selected measures of student engagement?

Definitions of Student Engagement

An early attempt to identify and define some of the important characteristics associated with what we now regard as student engagement was outlined by Pace (1984) in the *College Student Experiences Questionnaire*. The purpose of this instrument was to assess key aspects of a higher education including the quality of students' effort as well as their development of healthy

interpersonal relationships and overall satisfaction with the college experience. Pace (1990) later cited enhanced developmental benefits for students who devoted more time and energy to their educational tasks and activities.

Astin's (1984) developmental theory defined student involvement as "the amount of physical and psychological energy that the student devotes to the academic experience" (p. 297). According to Astin, the highly involved student interacts with faculty members and peers, demonstrates a commitment to academic achievement, and is an active member of the campus community. The benefits of student involvement are substantial and range from greater overall satisfaction and persistence to increased interest in the arts and greater self-esteem (Astin, 1984).

Chickering and Gamson's (1987) *Seven Principles for Good Practice in Undergraduate Education* linked student engagement to a range of contributing principles. The seven principles were defined as: *student-faculty contact*, *cooperation among students*, *active learning*, *prompt feedback*, *time on task*, *high expectations*, and *diverse talents and ways of learning* (p. 3). Each of these categories was linked with related positive developmental outcomes in the undergraduate experience.

In their landmark contribution to assessment in student development, *How College Affects Students: Findings and Insights from Twenty Years of Research*, Pascarella and Terenzini (1991) proposed a relationship between engagement and development along curricular parameters. According to the authors, "the greater the student's involvement or engagement in academic work or in the academic experience of college, the greater his or her level of knowledge acquisition and general cognitive development" (p. 616). Expanding upon the work of Astin (1993) and Pascarella and Terenzini (1991), Hu and Kuh (2002) bridged the gap between curricular and co-curricular offerings in defining engagement as "the quality of effort students

themselves devote to educationally purposeful activities that contribute directly to desired outcomes" (p. 555).

A more nuanced definition of student engagement was provided by Fredricks, Blumenfeld, and Paris (2004) in which engagement is separated into behavioral, emotional, and cognitive domains. *Behavioral* engagement encompasses "involvement in academic and social or extracurricular activities and is considered crucial for achieving positive academic outcomes and preventing dropping out." *Emotional* engagement is evident in "positive and negative reactions to teachers, classmates, academics, and school and is presumed to create ties to an institution and influence willingness to do the work." And *Cognitive* engagement "includes involvement in academic and social or extracurricular activities and is considered crucial for achieving positive academic outcomes and preventing dropping out" (Fredricks et al., 2004, p. 60).

Kuh (2009) later expanded his definition of student engagement to "the time and effort students devote to activities that are empirically linked to desired outcomes of college *and* what institutions do to induce students to participate in these activities" (p. 683). A similar interpretation of student engagement was advanced by the Australasian Student Engagement Report, *Engaging Students for Success* (2009). The purpose of this organization is to assess "information about individuals' intrinsic involvement with their learning, and the extent to which they are making use of available educational opportunities" (p. 4).

Taking all of these definitions into account, and considering that the items included in the survey for this study were extracted from the NSSE College Student Report, the definition of student engagement advanced by NSSE (2012a) seems most relevant and appropriate:

> [T]he amount of time and effort students put into their studies and other educationally purposeful activities [and] how the institution deploys its resources and organizes the curriculum and other learning opportunities to get students to participate in activities that decades of research studies show are linked to student learning. (par. 1)

Finally, important similarities between student engagement and civic engagement, as well as the potential for improved civic engagement through student engagement, warrant a brief review of a related definition. The Coalition of Civic Engagement and Leadership defined civic engagement as "acting upon a heightened sense of responsibility to one's communities… including developing civic sensitivity, participation in building civic society, and benefiting the common good" (Jacoby, 2009, p. 9). Individual characteristics associated with civic engagement include "Learning from others, self, and environment to develop informed perspectives," "[v]aluing diversity and building bridges across difference," and "[d]eveloping empathy, ethics, values, and a sense of social responsibility" (Jacoby, 2009, p. 9).

Benefits of Student Engagement

At the heart of the college marching band experience, and the central investigative focus of this report, are distinctive opportunities for positive and productive student engagement among band participants within the larger campus community. Student engagement is widely believed to facilitate an array of positive developmental outcomes during the undergraduate years (Astin, 1993; Pascarella & Terenzini, 2005), and students who work closely with challenging and supportive mentors may experience additional cognitive growth and development (Perry, 1968; Sanford, 1967). In these settings, students integrate diverse ideas and perspectives to achieve

higher levels of understanding (Chickering & Reisser, 1993) and develop greater appreciation for their interconnectedness (Bronfenbrenner, 1993). Positive engagement in collaborative and educationally purposeful out-of-class activities has also been shown to lead to important gains in critical thinking, problem-solving, and interpersonal skills (Kuh, 1995).

Beyond the general opportunities for student engagement, the college marching band offers participants important opportunities to work in close proximity with other students representing a full spectrum of diversity. This includes students of various racial, cultural, political, religious, ideological, and socioeconomic backgrounds. Under these conditions, as preconceived notions and ideas are challenged, students may begin to experience greater cognitive dissonance and their growth can be even more substantial (Hurtado, 2009; Hurtado & DeAngelo, 2012; Kegan, 1994, Milem, 2000). It is theorized that collaborative and educationally purposeful tasks integrating many different types of students may provide the ideal conditions for promoting understanding among diverse peers (Duster, 1993). According to Chickering and Reisser (1993), the ability for students to interact cooperatively with others who do not necessarily share their views is an important step in the development of healthy interpersonal relationships.

Student engagement with diverse peers in the marching band setting may have important and lasting implications beyond the rehearsal halls and performance venues. Students who engage with others who are culturally or ideologically different may develop a greater sense of civic responsibility and be more likely to perform service work in their communities (Milem, 2000). Not surprisingly, as college campuses and the broader society become increasingly diverse, there has been a growing call for colleges and universities to promote opportunities for students to develop positive and productive relationships across a wide range of individuals and groups (Cabrera, Nora, Terenzini, Pascarella, & Hagedorn, 1999).

Assessment of Student Engagement

Any assessment of student engagement is fraught with challenges. Observations are time-consuming and cumbersome, and there is always the possibility that students who are aware of the observations might act differently than they would under normal circumstances. Interviews can provide detailed and nuanced accounts of student engagement but, for any depth of analysis to occur, the sample of participants must be relatively small. Surveys provide a quick snapshot of student engagement, but many self-reporting instruments lack validity (Pace, 1985) and any resultant findings are inevitably based upon student perceptions of their own behaviors.

After considering the full range of advantages and disadvantages with each assessment method, it was determined that the survey option would provide the most useful information about student engagement from a relatively large sample of college marching band participants. Two respected survey instruments were evaluated for possible administration to the marching band members: the National Survey of Student Engagement (NSSE) and the Cooperative Institutional Research Program (CIRP) Freshman Survey and College Senior Survey. Each survey has been administered to thousands of students at hundreds of institutions of higher education, and dozens of studies have been conducted to evaluate and interpret the resultant data (Higher Education Research Institute, 2012; National Survey of Student Engagement, 2014).

Although each survey provides valuable information about the profiles of engagement for the student participants, the NSSE utilizes the same survey instrument for both first-year students and seniors, allowing direct comparisons between the two groups. By comparison, the CIRP employs one survey instrument for first-year participants and another for senior participants. The CIRP Freshman Survey is intended to be administered prior to the start of the academic year, whereas the CIRP Senior Survey is intended to be administered during the second semester

of the academic year. Although administration of the Senior Survey could have been accomplished without much difficulty, it would have been nearly impossible to administer the Freshman Survey to new marching band students prior to the start of the academic year.

In addition to the logistical challenges associated with administering the CIRP surveys, the number of institutions with a Division-I college marching band and available NSSE data (37) was far greater than the number of comparable institutions with CIRP data (11). Given the higher number of viable NSSE institutions, it was anticipated that the yield of marching band survey participants would be higher as well.

Overall, the scope and influence of the NSSE in higher education appears to be greater than that of the CIRP. With 584 institutions participating in the NSSE in 2012 and 1,523 since 2000, the NSSE is one of the most widely administered and cited assessment instruments for evaluating a range of important student engagement measures in higher education (NSSE, 2012a). Researchers at the NSSE Institute were also amenable to having items from the survey administered to new groups of students, and they were willing to provide general undergraduate student data from a minimum of five correlated institutions for the purpose of comparisons.

Of particular interest were NSSE constructs representing important undergraduate learning objectives (National Survey of Student Engagement, 2012b). The NSSE *diversity* and *personal social* constructs, identified through factor analysis by Kuh (2003a), were selected as ideal templates for this study along with the *higher-order learning* and *reflective learning* constructs developed by NSSE (2009). These latter constructs seek to evaluate what Entwistle (1988) and Nelson Laird, Shoup, and Kuh (2005) refer to as "deep-level processing" or the degree to which students are able to integrate and transfer knowledge across disciplines for new applications and purposes. For these reasons, and the reasons outlined above, the NSSE was ultimately selected

over the CIRP Freshman Survey and College Senior Survey for administration in this study. A detailed evaluation of the National Survey of Student Engagement is provided in Chapter 2.

Summary

Student engagement has been associated with a range of positive outcomes from a college education including greater appreciation of diversity and capacity for citizenship (Pascarella & Terenzini, 2005) as well improvements in critical thinking, problem-solving, and interpersonal skills (Kuh, 1995), but no studies have yet been undertaken to evaluate the potential benefits of college marching band participation in facilitating greater student engagement.

Renewed concerns about limited student engagement on college campuses have come at a time when higher education is already under increasing scrutiny for its apparent inability to provide flexible offerings at reasonable prices (Selingo, 2012) and a failure to prepare graduates for successful careers and responsible citizenship (Bok, 2005; Colby et al., 2003). Only a third of college students believe their education has improved their civic awareness or provided them with the necessary skills to affect positive change in society (Dey et al., 2009), and employers are dismayed that college graduates have not learned to think critically or collaborate with diverse colleagues in group settings (Hart Research Associates, 2010).

The purpose of this study was to evaluate some of the important types of student engagement that characterize college marching band participants. It was theorized that band participation may provide students with distinctive opportunities for collaboration with diverse peers which may, in turn, facilitate valuable cognitive dissonance and lead, ultimately, to increased engagement within the broader society as responsible citizens.

CHAPTER TWO: RELATED LITERATURE

Overview

Although the purpose of this study was to evaluate a range of potential benefits from participation in the college marching band, it is first and foremost an assessment of a particular type of student engagement. As such, this review of the literature will focus primarily upon those elements that define and support student engagement in the undergraduate experience.

The importance of engaging late adolescents in the educational process has been recognized as an important priority for more than fifty years (Erikson, 1959), and it is widely understood that students can thrive under caring mentors who provide both challenge and support (Sanford, 1967). More recently, theorists have asserted that students who engage in thoughtful relationships within their immediate and shared environments may experience increasing levels of cognitive complexity (Bronfenbrenner, 1993) and learn to appreciate their interconnectedness in the broader community (Kegan, 1994).

Cooperative and collaborative educational opportunities have been shown to foster a greater appreciation of the learning experience (Tinto, 1997) and facilitate important developmental benefits for participants (Pascarella & Terenzini, 2005) including enhanced interpersonal skills (Kuh, 1995). Moreover, students who engage with diversity during the undergraduate years may develop additional skills necessary for integration into an increasingly multicultural society (Gurin, Dey, Hurtado, & Gurin, 2002; Umbach & Kuh, 2006) and improve their commitment to social progress and capacity for citizenship (Hurtado, 2009).

Colleges and universities are acutely aware of the broad spectrum of benefits associated with student engagement. This awareness is one of the primary reasons institutions devote so many resources toward the assessment of related student behaviors during the undergraduate

experience with instruments such as the National Survey of Student Engagement (NSSE). It is hypothesized that participation in the college marching band may provide students with an important forum for the cultivation of fundamental skills associated with engagement.

Maturity

Even in our most revered traditional institutions of higher education, it is not uncommon to find large lecture halls filled with distracted students listening passively to prepared lectures with few opportunities for dialogue or inquiry. This occurs despite the fact that research shows active engagement throughout the educational process is critical in fostering a broad range of desirable developmental outcomes during college (Astin, 1993, Pascarella & Terenzini, 2005) and can lead to a successful transition to professional life after graduation (Roksa & Arum, 2012).

Erikson (1959, 1968) was among the first psychologists to recognize the importance for late adolescents to be afforded opportunities to associate with like-minded individuals in supportive environments in order to develop their identities as well as their abilities to make meaningful choices. According to Erikson, opportunities for interaction, achievement, and reflection are critically important in enabling students to overcome developmental obstacles and establish mature interpersonal relationships.

Chickering (1969; Chickering & Reisser, 1993) identified seven vectors or core issues affecting student identity development. He encouraged students to ask important questions about who they are, how they know, what they believe, and how they relate to others. This process, according to Chickering, is far more important and meaningful during college than the mere memorization of data. As part of this process, students integrate new ideas and information which, in turn, leads to additional exploration and increasingly complex levels of knowing and

understanding. This perspective was shared by Vygotsky (1978), who viewed challenging opportunities for engagement as vital to cognitive development.

Students' interactions with individuals and groups throughout the many layers of their immediate and shared environments can facilitate the development of meaningful relationships and lead to increasing levels of cognitive complexity (Bronfenbrenner, 1993). Similarly, although obstacles to student involvement may inhibit growth, students who do engage in thoughtful relationships with others may learn to incorporate ideal behaviors in their actions and interactions with others. Over time, they may begin to understand and appreciate their interconnectedness as well as their ability to shape and affect others within their communities (Bronfenbrenner, 1993).

Environments that enable students to utilize their abilities and talents in shared experiences with others may also promote greater levels of satisfaction (Holland, 1997). In these settings, students can refine their beliefs, priorities, and values, and they are more likely to persist to graduation (Tinto, 1993). Gergen (1991, 1999) extended this theory in positing that students are defined by their relationships with others. Through relationships, he asserted, students create systems of meaning. Growth is experienced when the students are able to explore those relationships in cooperative and collaborative tasks (Gergen, 1991, 1999).

According to Astin (1999), student involvement is much more than being present. Involved students are active participants in the campus community, and their interactions with peers and instructors reflect a substantial physical and psychological commitment (Astin, 1999). Astin attributed many of society's problems to a lack of student involvement at the college level, and he urged colleges to accept responsibility for more actively shaping student development so our graduates are better equipped to deal with life's crises. Among Astin's (1999) desired outcomes

of involvement are self-understanding, honesty, social responsibility, tolerance, and citizenship. Pascarella and Terenzini (2005) echoed Astin's call for higher education to facilitate student moral development through engagement in social, cultural, and intellectual offerings.

Similarly, Dweck (2000) advocated the use of worthy educational challenges to engage students and encourage growth-oriented behaviors. She challenged conventional wisdom in suggesting that students who possess natural ability and receive frequent praise for their efforts are more likely to endure difficult challenges to accomplish goals. "The truth is that success in itself does little to boost students' desire for challenge or their ability to cope with setbacks" (Dweck, 2000, p. 1). Dweck theorized that successful students view intelligence as a dynamic and flexible process that may be enhanced and increased. These students take great pleasure in the process of learning, they love to be challenged, they remain undeterred when confronted with obstacles, and they finish what they begin.

And yet, there is mounting evidence that many students are not being adequately engaged and challenged in higher education. Despite assertions that the development of critical thinking and cognitive abilities may be directly proportional to students' active involvement in cultural and intellectual activities (Pascarella & Terenzini, 2005), 68% of post-secondary students have never attended a fine arts event (Berkner & Choy, 2008). And even though many institutions emphasize programs designed to foster intellectual and social engagement (Pell Institute, 2007), 73% of college students have never participated in a student club (Berkner & Choy, 2008). Considering these findings, it is perhaps not surprising to learn that Educational Testing Service data indicate three-quarters of college seniors are not proficient in critical thinking skills (Association of American Colleges & Universities, 2005), and nearly half of all undergraduate students do not complete their degrees (Pascarella & Terenzini, 2005).

Forty years ago, when student retention issues first garnered national attention, students who were unable to persist to graduation were simply deemed less capable or less motivated. Tinto (2006) refers to this phenomenon as "blaming the victim" (p. 2). Today, we understand that high retention requires pervasive student engagement, and student engagement requires both student interest and institutional support (Kuh et al., 2005). In short, students must commit to their own education in and out of the classroom, and the university must provide resources and supportive learning environments to encourage meaningful and sustained student engagement.

Colleges and universities understand that increased contact with faculty encourages students to commit more fully to their out-of-class educationally purposeful activities (Kuh & Hu, 2001) and generally leads to greater student development and satisfaction (Astin, 1993). However, 63% of first-year college students report having no informal contact with faculty outside of class (Berkner & Choy, 2008). Mentoring can have a particularly positive affect on marginalized students and enable them to become more connected, involved, and engaged in their campus communities (Hammer, 2003; Jackson, 2009). Kegan (1994) suggested that adolescents must be guided to engage with others in order to achieve a more complete sense of self and develop a greater understanding of their interrelatedness in the broader society:

> … adolescents discover, if artfully coached, that in order to get what they want for themselves they must learn, gradually and with understandable ambivalence, the need to take out membership in a community of interest greater than one, to subordinate their own welfare to the welfare of the team, even, eventually, to feel a loyalty to and identification with the team, so that its success is experienced as their own success and their failures are assessed in terms not of their personal cost but of the cost to the team. (Kegan, 1994, p. 47)

Collaborative learning pursuits provide additional opportunities for meaningful involvement in the college community. Peer groups are the most powerful influence on academic and non-academic development in college (Astin, 1993), and students derive great benefits from working cooperatively and teaching each other (Chickering & Gamson, 1987). In addition, university efforts toward promoting interdependence among students can promote valuable social engagement and lead to mutual academic success (Johnson, Johnson, & Smith, 1998).

Awareness of the learning of others, as well as the learning of the self, may be enhanced through collaborative and cooperative educational offerings (Tinto, 1997). Research consistently shows that students who engage in collaborative learning opportunities derive greater developmental benefits than their peers who do not work collaboratively (Pascarella & Terenzini, 2005). Kuh (1995) found that students who engaged in cooperative out-of-class activities experienced positive changes in critical thinking and interpersonal/practical competence, and Howard (1986) found that extracurricular involvement, especially with leadership opportunities, was a more reliable predictor of future professional success than undergraduate academic achievement.

A National Survey of Student Engagement (NSSE) initiative entitled Project DEEP (Documenting Effective Educational Practice) evaluated a range of colleges and universities with higher-than-predicted scores in "academic challenge, active and collaborative learning, student interaction with faculty members, enriching educational experiences, and supportive campus environment" (Kuh et al., 2005, p. 10). A key finding was that student engagement in educationally enriching pursuits can occur along a broad spectrum of programs and activities ranging from mentoring programs and diversity initiatives to special rituals and traditions aimed at providing students with a sense of belonging and camaraderie. At the heart of the

philosophies of most DEEP institutions was a strong moral obligation to engage all students and ensure that they receive adequate opportunities for growth and development (Kuh et al., 2005).

The Pell Institute (2007) undertook a similar initiative in examining the patterns of success among 14 institutions of higher education. Higher performing institutions actively fostered high levels of student engagement as evident in the large numbers of students participating in co-curricular activities. A similar profile may be found in the large public institutions selected for this study. In many ways, the characteristics identified by the Project DEEP initiative (Kuh et al., 2005) and the Pell Institute study (2007) resemble the *Seven Principles for Good Practice in Undergraduate Education* advanced by Chickering and Gamson (1987). Although proposed for general undergraduate education, the seven categories of thoughtful student engagement apply equally well to educationally challenging and purposeful out-of-class experiences.

A recurring theme in the literature is the importance of ensuring educational merit and purpose in engagement offerings in order to achieve maximum benefit for the participants (Pascarella & Terenzini, 2005). The greater the level of student involvement in these types of opportunities, the greater the benefit for a range of educational priorities including enhanced thinking and the synthesis of large quantities of information (Pace, 1990). Kuh (1995) found that students attributed far greater gains in cognitive abilities to their out-of-class experiences than to their academic work with faculty. These students also demonstrated greater interpersonal and collaborative problem-solving skills. Kuh (1995) theorized that educationally purposeful out-of-class experiences that encourage complex perspectives and the synthesis of information are ideal for the development and cultivation of these fundamental objectives of a higher education.

It is important to acknowledge that the emphasis on out-of-class programs and activities does not mitigate or eliminate the importance of traditional classroom experiences for students. As

Reason (2009) observed, active and high quality teaching in the classroom can engage students and foster commitment to the college or university, often leading to higher rates of persistence. In many ways, the value of out-of-class experiences is compounded by their ability to enhance and reinforce formal classroom experiences (Pascarella & Terenzini, 2005).

Today, there is broad consensus on the importance of student engagement during the undergraduate years in fostering personal development, social maturation, cognitive complexity, and acceptance of others (Astin, 1993; Chickering & Riesser, 1993; Kuh, Kinzie, Schuh, Whitt et al., 2005; Pascarella & Terenzini, 2005). Learning is understood as a comprehensive process that transcends the classroom environment and includes co-curricular and social experiences (American College Personnel Association, 1996). Student Engagement has been promoted by numerous organizations from the Association of American Colleges and Universities (2007) to the National Commission on the Future of Higher Education (2006). It is now believed that investments in these offerings may lead to higher levels of continued learning, engagement, and intellectual development well beyond the college years (Pascarella & Terenzini, 2005).

Difficulty

A primary objective of higher education is to prepare students for the autonomy and independence they will require upon graduation, but today's generation of college students has been more sheltered and protected by their parents than any other in the past four decades (Levine & Dean, 2012). This has led to the cultivation of a group of young people who lack maturity, avoid difficult personal interactions, and are incapable of responding to adversity (Levine & Dean, 2012). In order to fully develop and realize their potential, these students must

be presented with structured opportunities like those found in the marching band to work through difficult challenges and appreciate the value of adversity and compromise in facilitating growth.

This is not a new philosophy in education. Tuckman's (1965) review and evaluation of developmental sequences in small groups identified four stages in the establishment of group cohesion and effectiveness: *testing and dependence*, *intragroup conflict*, *development of group cohesion*, and *functional role-relatedness*, also referred to as "forming," "storming," "norming," and "performing" (p. 396). Providing students with educational opportunities to work through shared challenges and adversity is an effective method of teaching students to understand their tendencies and overcome their limitations.

Sanford (1967) emphasized the importance of providing students with educational challenges within a supportive environment to facilitate growth and development. This balance can be achieved, according to Sanford, through the cultivation of strong mentoring relationships during the college years in which students are challenged in carefully monitored environments, often outside the classroom, by committed instructors and advisors. Ultimately, Sanford concluded, the purpose of higher education is not intellectual development but human development.

Similarly, the cognitive structural theorist William Perry (1968) emphasized the importance of opportunities for students to learn to make difficult choices in establishing a sense of identity. Perry encouraged students to question how they make meaning of themselves and their world, and he urged faculty members to create challenging educational opportunities in which students receive closely supervised instruction at levels just above their respective comfort zones. Knefelkamp (1999) offered practical examples of Perry's model and underscored the need for safe learning environments where risk taking is supported and closely monitored.

In the medical realm, Affleck and Tennen's *Construing Benefits from Adversity: Adaptational Significance and Dispositional Underpinnings* (1996) evaluated health challenges experienced by patients and identified commonalities among individuals who experienced adversity in unexpected ways. These included healthier interpersonal relationships and improved perspective as well as greater empathy, patience, and acceptance of others. The authors concluded that the ability to appreciate the benefits of adversity may be a predictor of longer-term emotional and general health.

Liney and Joseph (2004) identified "*adversarial growth*" (p. 11) as the common characteristic among medical patients who were able to perceive some type of benefit in the wake of trauma. According to their review of related literature, "problem-focused coping," "emotional social support," and "social support satisfaction" were all conditions associated with positive growth following adversity (p. 16). Individuals who experienced some level of growth under these conditions were frequently characterized as extraverted, agreeable, conscientious, and/or open to experience (Liney & Joseph, 2004).

A student's capacity to derive a sense of benefit and growth from experiences with adversity is critical for growth and may be influenced by several factors. Among these are the ability to thoughtfully and carefully alter one's life structure, a willingness to accept support from others, and the ability to find meaning in adversity (McMillen, 1999). An awareness of these positive benefits associated with adversity may also enable those affected to achieve greater success while working through future challenges (McMillen, 1999).

Society

Although the theoretical framework underpinning this study was derived primarily from the student engagement literature, it has parallel roots in the sphere of sociology. Active social interaction with others has long been understood as an integral component in the development of an individual's sense of self (Mead, 1934). In *Mind, Self, and Society*, Mead (1934) described the mind as a "social process or context of experience" that may be developed through interactions with others (p. 50). According to this theory, students must learn to place themselves in others' positions within various social settings to objectively understand and appreciate a range of perspectives.

Cooley (1909) identified "primary groups" as those characterized by "intimate face-to-face association and cooperation" (p. 23). Although individuality and differentiation remain within the primary group, the predominant characteristic is a shared spirit and sense of camaraderie based upon mutual standards and objectives. Human nature, according to Cooley, does not exist within individuals but within these primary groups, where it is cultivated and nurtured.

As Durkheim (1972) further observed, there is a "social cohesion" among individuals who share a common purpose (p. 128). Beyond the attraction of similarity, "they are joined to that which is the condition of existence of this collective type: that is to say, to the society that they form by their union" (Durkheim, 1972, p. 128). The bond shared among members of a purposeful society fosters love not only for each other but for their common cause as well.

Engaging with others in diverse social settings also provides valuable cognitive challenges (Coser, 1975). These challenges alter our perception and understanding of ourselves and others. In the process, group members learn to be flexible when confronted with challenges and offer

innovative solutions to conventional problems. Perhaps most importantly, through engagement in complex social relationships, students can improve their capacity for empathy.

A particularly effective pedagogical technique for achieving group objectives in diverse academic settings is *Complex Instruction* (Cohen, Lotan, Scarloss, & Arellano 1999). The two defining characteristics of this method are that all students are equally engaged in group tasks, regardless of ability, and the active participation of each student is valued by the other students. Within this framework, students are encouraged to work through differences toward the attainment of collaborative and interdependent group tasks (Cohen et al., 1999).

Community

In many ways, our students are more connected but disconnected than ever before. Electronic communication facilitates rapid exchanges among individuals, but these interactions are often superficial and impersonal. It is not uncommon today to find college students in the same room texting messages back and forth rather than engaging in more meaningful face-to-face conversations (Levine & Dean, 2012). Thomas Friedman (2012) recently observed, "Throughout our society, we are losing the places and institutions that used to bring people together…" (par. 9). In order to experience social development, students must be presented with opportunities for personal and meaningful interactions as members of a community.

Nearly fifty years ago, in his reflections on *The Uses of the University*, Clark Kerr cited the importance of rituals and traditions and the role of dynamic student groups in contributing to the "fascinating pageantry" of the university community (Kerr, 1963, p. 42). Our understanding and appreciation of the importance of building a sense of community has only increased since that time. Throughout higher education, theorists have urged faculty and administrators to design

and support programs that integrate students into the social and academic structures of the university as members of the campus community (Tinto, 1993).

Investments in learning communities within higher education can promote both academic and social growth for the participants. These cooperative educational settings encourage students to become more integrated with each other and, in turn, may lead to greater satisfaction and academic success (Johnson, Johnson, & Smith, 1998). Education majors may be even more receptive to the emphasis on integration in diverse communities as a reflection of their emphasis on social justice (Cochran-Smith, 2004). A Pell Institute (2007) report found increasing numbers of large institutions working to foster a sense of community through the creation of new opportunities for students to become involved in the campus environment.

In sharp contrast to the traditional classroom model in which students are typically encouraged or expected to arrive at their own individual answers, the interactive nature of learning communities, including the marching band, enables students to work together collaboratively while navigating an array of diverse and complex perspectives. It is theorized that learning communities can play an important role in promoting contextual learning and critical thinking (Zhao & Kuh, 2004). In addition, as students begin to understand and support the education of others as equally important to their own education, a form of "educational citizenship" can begin to take hold (Tinto, 1995, p. 11).

Braxton, Hirschy, and McClendon (2004) observed that the degree to which students believe there is a sense of community on campus, as well as the extent to which they share the values and priorities of the community, will determine their willingness to become socially integrated. Shared experiences among students, faculty, and staff can create a sense of belonging and interconnectedness that transcends individual differences and leads to greater student satisfaction

and persistence (Kuh, 2005).

An important objective in fostering a sense of community on college campuses is the cultivation and appreciation of the self as interconnected with others. If these conditions are met, enormous benefits may be felt within the broader society as graduating students become responsible citizens, participate in elections, and accept leadership positions within their respective communities (Bowen, 1977; Pascarella & Terenzini, 2005).

Diversity

Positive student engagement is a critical factor in promoting growth and maturity (Astin, 1999; Pascarella & Terenzini, 2005), but limited engagement with like-minded individuals does not lead to the same levels of dissonance and self-doubt that can facilitate more significant development during the college years (Perry, 1968; Kegan, 1994). Opportunities for students to engage with diversity may lead to a range of benefits during the undergraduate experience including the cultivation of important skills for successful integration into an increasingly multicultural democracy (Gurin, Dey, Hurtado, & Gurin, 2002; Umbach & Kuh, 2006).

Despite a recent debate about the value of multicultural environments in higher education (Liptak, 2012), educators have promoted student diversity for more than half a century. In 1945, a Harvard faculty report entitled *General Education in a Free Society* advocated not only for the development of skills that uniquely define and differentiate students but also those that celebrate commonalities among diverse backgrounds and cultures (Lucas, 1994). Others suggested that a primary purpose of a liberal arts education is to teach students about each other and encourage them to appreciate and respect differences in their pursuit of shared objectives (Kallen, 1949).

Allport's (1979) *The Nature of Prejudice*, first issued in 1954, identified several basic requirements for healthy and productive interactions among people from diverse cultural and ethnic backgrounds including an emphasis on collaboration over competition, the promotion of equal status among all participants, and a shared focus on meeting common goals and objectives. Perry (1968) observed that exposure to divergent views can create cognitive dissonance and lead to the acceptance of multiple perspectives as equally valid.

We are now taught that tolerance, the appreciation of differences, and the ability to respond to peers as unique individuals are considered core requirements in the development of healthy interpersonal relationships (Chickering & Reisser, 1993). The exploration of diversity through meaningful interpersonal collaborations among students of various backgrounds and cultures enables participants to understand each other in ways that transcend physical characteristics and may promote greater student development (Chickering & Reisser, 1993).

Meaningful and purposeful collaborative experiences are believed to provide the most compelling and effective educational path for promoting understanding through diversity (Duster, 1993). Tinto's (1997) evaluation of classroom environments found that the integration of diverse students in settings where differences are understood and embraced led to greater learning for all participants, and Pascarella and Terenzini (2005) confirmed that shared pursuits requiring cultural and intellectual immersion can produce greater growth than other less demanding pursuits including common social and athletic activities.

Among the myriad benefits of promoting racial diversity at the undergraduate level are enhanced critical reasoning skills, greater student engagement and persistence, an increased tendency toward community service, and a higher self-assessment of academic, social, and interpersonal skills (Milem, 2000). Students who engage with diversity are also more likely to

demonstrate a willingness to collaborate with students from other cultures and work toward the improvement of race relations in the broader society (Milem, 2000).

With the increasing racial and cultural diversity on college campuses, it is widely believed that college administrators have a responsibility to educate students toward acceptance of others and promote positive interactions among diverse cultural, ethnic, and racial groups throughout the college experience (Cabrera, Nora, Terenzini, Pascarella, & Hagedorn, 1999). Focused experiences in cultural diversity have been shown to improve the learning climate, facilitate positive learning and social outcomes, and lead to greater student satisfaction (Milem, 2003).

The *American Council on Education* (1998) endorsed the cultivation of diverse intellectual and social offerings where communities are strengthened, mutual respect and teamwork are supported, and students are encouraged to become thoughtful and discerning citizens who interact freely with people of varied backgrounds, beliefs, and identities. Positive experiences with diversity may also facilitate a "pluralistic orientation" in which students are better able to work cooperatively with diverse peers, discuss controversial ideas, and accept challenges to their views and perspectives (Hurtado & DeAngelo, 2012, par. 11). A similar phenomenon, referred to as "principled pluralism," is evident when students begin to balance their own needs with the needs of the larger society (O'Neill & Senyshyn, 2011, p. 24).

There is considerable evidence suggesting that students who establish interracial friendships with other students often develop positive racial/ethnic attitudes and values (Pascarella & Terenzini, 2005). Astin (1999) further observed that involvement in diverse and cooperative educational environments is critical in fostering self-understanding, tolerance, honesty, citizenship, and social responsibility. The more students are provided with opportunities for engagement with diversity throughout the campus environment, the greater their commitment to

social progress and capacity for citizenship (Hurtado, 2009). Even those students who do not directly engage with diversity can benefit from these initiatives (Denson & Chang, 2009).

Opportunities for engagement with diversity through extracurricular programs provide students with a range of backgrounds and perspectives and enable students to develop greater appreciation of the different racial, ethnic, and economic characteristics that are frequently misunderstood in mainstream society (Sax, 2008). If properly developed, these types of programs can unite students with varying religious faiths, political perspectives, and cultural backgrounds together in shared pursuits with a common purpose (Hu & Kuh, 2005).

In a landmark Supreme Court case, *Grutter v. Bollinger*, 539 U.S. 306, 123 S. Ct. 2325 (2003), Justice Sandra Day O'Connor acknowledged the benefits of achieving diversity in a student population and underscored the legitimacy of admissions processes that use race as one of many determining factors in a holistic review process. In part, the Court's holding in *Grutter v. Bollinger* recognized the need for higher education to provide diverse environments in which students can prepare for careers in increasingly diverse work conditions (Hurtado, 2006). Evidence from the Wabash National Study suggests that skills learned through engagement with diversity, including the ability to dispel negative biases and understand differences and inequalities among disparate people, is critical for students to become responsible citizens in an increasingly global society (Goodman et al., 2011).

As the population of non-white and multiracial individuals continues to grow in the United States, education through diversity is more important than ever (Torres, Jones, & Renn, 2009). Our vast cultural landscape requires new educational strategies in order to facilitate relationships among diverse individuals (Rankin & Reason, 2005), and higher education must play an important role in embracing diversity to "transform" the undergraduate experience and create "a

more equal, diverse democracy" (Hurtado, 2006, p. 193). This may be accomplished, in part, through the development of educational initiatives designed to produce "interculturally competent citizens who can engage in informed, ethical decision-making when confronted with problems that involve a diversity of perspectives" (King & Magolda, 2005, p. 571).

Responsibility

At the heart of the discussion regarding the importance of marching band participation in the undergraduate experience is the broader question about the responsibility of higher education to shape young men and women of character for lives as thoughtful and engaged citizens. Learning to work with others across a range of backgrounds and perspectives requires a broad educational platform and a diverse set of skills. Nearly two centuries after the original publication of *The Yale Report* in 1828, the message of providing students with essential skills to fulfill a more noble purpose beyond the college years still resonates today:

> When a man has entered upon the practice of his profession, the energies of his mind must be given, principally, to its appropriate duties. But if his thoughts never range on other subjects, if he never looks abroad on the ample domains of literature and science, there will be a narrowness in his habits of thinking, a peculiarity of character, which will be sure to mark him as a man of limited views and attainments. On the other hand, he who is not only eminent in professional life, but has also a mind richly stored with general knowledge, has an elevation and dignity of character, which gives him a commanding influence in society, and a widely extended sphere of usefulness. (Willis, et. al., 1993, p. 31)

The development of character has been an enduring theme in education. Rev. James W. Strong (1888), the former president of Carleton College stated: "The grand aim of every great teacher, from Socrates to Hopkins, has been the building of character" (p. 153). Strong viewed this educational objective as fundamental in enabling students to go out into the world upon graduation and bring honesty and responsibility to bear in their new endeavors. Brubacher and Rudy (1997) asserted that a primary objective of a higher education should be to develop students' intelligence and character in order to prepare them for responsible citizenship.

In an address originally delivered in 1975, Rev. J. Donald Monan (2009), the former president and current chancellor of Boston College, emphasized the importance of a liberal education in enabling students to exercise their freedom to make quality choices beyond their college years. These choices, well made, can lead to an enriching and fulfilling life. According to Fr. Monan, knowledge is not pursued for its own sake but, rather, to prepare people to become better citizens who in turn use the combination of skills and abilities they have gleaned in order to make informed decisions addressing a range of challenges and social issues (Monan, 2009).

A report by the Association of American Colleges and Universities (2005) compiled some of the top objectives of a higher education according to both college administrators and professional employers. These objectives included civic engagement and ethical reasoning, characteristics that are essential to a healthy community and an educated democratic citizenry. And yet, according to former Harvard University President, Derek Bok (2005), for all the emphasis on establishing a foundation for the lifelong pursuit of knowledge and integration into society, it now appears that students make very little progress in acquiring these types of skills during college.

Arum and Roksa's (2011) four-year review of more than 2,300 college students concluded that today's students lack direction and motivation. More than a third of the students exhibited no significant gains in critical thinking and complex reasoning over their entire four years in college (Arum & Roksa, 2011). Educational Testing Services evaluations of critical thinking skills confirmed that fewer than one in ten seniors were deemed competent and an alarming three out of four were deemed not proficient (Association of American Colleges and Universities, 2005).

To whom should this apparent failure be attributed? According to Arum and Roksa (2011), there is plenty of blame to go around. Secondary schools are failing to provide students with the basic skills necessary for continued growth and development in college. Students arrive on campus to discover that socialization is valued over education, and they readily adapt to put forth the minimal effort required in order to graduate. Faculty members avoid confrontation with students and increasingly prioritize research over teaching, and school administrators tacitly endorse the entire process by highlighting faculty publications in a competitive strategy to ascend the national rankings (Arum & Roksa, 2011).

Despite increasing numbers of students who cite volunteer experience when touting their out-of-class accomplishments, some educators question whether students lack the "personal and social responsibility" to affect meaningful change in challenged communities (Hurtado, Ruiz, & Whang, 2012). A persistent lack of engagement has been blamed for many of society's problems, and theorists have argued that colleges and universities should accept greater responsibility for actively shaping the development of their students so they are better equipped to deal with life's crises during college and beyond (Astin, 1999).

Perhaps not surprisingly, the assessment of student engagement and retention has become a popular topic in higher education (Tinto, 2006). Surveys have been administered and evaluated, state institutions have been held increasingly accountable for their graduation rates, and high profile national rankings have attempted to capture and convey university efforts to support their students through to graduation (Tinto, 2006). The benefits of student engagement have been well documented, but efforts to reach students and provide them with valuable skills necessary to succeed beyond the college years have not always been satisfactory.

The ability to instill a broad portfolio of important skills and knowledge is widely accepted as a valuable and distinctive calling of American universities (Geiger, 1998), and employers routinely expect that college graduates will be able to communicate effectively and work cooperatively to solve new problems (Capelli, 1992). Former chief executive officer of Xerox, David Kearns, condemned the "narrow specialization" provided at some universities and urged administrators to promote the development of "flexible intellectual tools" that will enable college graduates to solve problems and continue to grow and develop throughout their lives (Association of American Colleges and Universities, 2005, p. 2).

The National Association of Student Personnel Administrators and the American College Personnel Association (2004) defined learning as a "comprehensive, holistic, transformative activity that integrates *academic learning* and *student development*" (p. 2). According to this philosophy, classroom education, personal development, and identity formation must be integrated objectives within higher education. In order for students to achieve a greater appreciation of their interconnectedness with others as well as the specific roles they play within the broader community, they must be provided with opportunities to make meaning out of the events and relationships in and out of the classroom during the undergraduate years.

The cultivation of student engagement during the undergraduate experience can have significant and lasting implications within the broader society. Students who are civically engaged in college are more likely to be active contributors to civic life upon graduation (National Task Force on Civic Learning and Democratic Engagement, 2012), and the preparation of students for active participation as citizens in a democratic society is widely regarded as one of the most important priorities of higher education (Labaree, 1997).

According to Kolb (2011), "The heart of a vibrant democracy is educated, engaged citizens who are able to make choices for themselves, their families, their communities, and their country" (p. 16). A successful American democracy, Kolb asserted, requires a successful system of postsecondary education. This priority encompasses more than just the development of critical thinking skills. In order to prepare students for lives as responsible citizens, they need to be provided with opportunities to foster the "drive, values, capacity to question, and ability to develop solutions in order to advance social progress" (Hurtado & DeAngelo, 2012, par. 1).

And yet, civic and political engagement among today's college students is alarmingly low. Many of today's college students are disenfranchised with government, and 80% do not believe social changes can be realized through conventional political processes (Levine & Dean, 2012). Civic education, once a national priority in the aftermath of World War II, is now a distant or nonexistent priority for most institutions (National Task Force on Civic Learning and Democratic Engagement, 2012). Civic engagement among younger Americans has become so dire recently that some educators have referred to the phenomenon as a "civics recession" (Quigley, 2011, par. 1), and in Massachusetts, concern about apathetic and disengaged graduates has grown so widespread that the state adopted legislation to monitor civic engagement in state colleges and universities (Smith, 2012). According to the National Task Force on Civic

Learning and Democratic engagement (2012), it is time "to embrace civic learning and democratic engagement as an undisputed educational priority for all of higher education" (p. 2).

Reforms to the current educational system will likely require a campus-wide collaborative and cooperative effort to make the education of the "whole student" an institutional priority (Pell Institute, 2007, p. 18). This includes providing opportunities for the development of teamwork, communication, and interpersonal skills (Tucker, 1992), as well as the types of decision-making and critical thinking skills that are cultivated through out-of-class experiences (Capelli, 1992). There is widespread consensus that these out-of-class experiences can contribute significantly to the aims and objectives of a college education (Astin, 1993; Pascarella & Terenzini, 2005). The earlier students become engaged, the more likely they will be to "reinforce their engagement as complex thinkers and responsible citizens" (Hurtado & DeAngelo, 2012, par. 16).

Although some measure of critical thinking, organizational skills, and interpersonal skills may be developed in classroom settings, Kuh (1995) observed that many out-of-class pursuits frequently require student competence in these domains. Students who cultivate these skills are often more successful and satisfied with their college experience. Kuh (1995) concluded that colleges and universities that are truly committed to enhancing student learning should play a more active role in promoting the important learning programs that exist outside the classroom.

Magolda and Terenzini (1999) encouraged colleges and universities to develop programs to bridge the gap between academic affairs and student affairs and promote the "synergistic relationship" between classroom experiences and out-of-class experiences (p. 23). In many cases, this strategy requires a reevaluation of both teacher and student responsibilities. Blurring the distinctions between different types of learning experiences, according to Magolda and Terenzini, (1999) leads to the development of significant educational collaborations.

In response to deficiencies in the narrow scope of contemporary higher education, Bok (2005) proposed revisions to the traditional priorities within the undergraduate curriculum to include a broader series of educational objectives including greater emphasis on the development of effective communication and critical thinking skills as well as the appreciation of diversity. He observed that many extracurricular programs provide students with these distinctive opportunities to facilitate alternative problem-solving techniques.

The implications for Bok's philosophy in the real world are substantial. Bok (2005) observed that most successful professional organizations are essentially "learning organizations" (p. 316). That is, they are constantly striving to improve their processes and products through the careful and meticulous analysis of policies and procedures with the aim of making their work more efficient and effective. Bok believed universities have the potential to become ideal models in these efforts because of their ability, with the proper range of educational opportunities, to produce creative and flexible thinkers who can collaborate and adapt to change in order to meet group objectives (Bok, 2005).

Given the broad consensus on the value of student engagement in fostering a life-long interest in becoming involved in one's community, encouraging students to seek new knowledge, and promoting gender and racial equality and understanding, it is not surprising that many top colleges and universities have made student engagement a top institutional priority (Pascarella & Terenzini, 2005). Developing and expanding programs in the undergraduate experience that cultivate these skills will have important implications for higher education as institutions strive to educate young women and men of character to make lasting contributions as engaged citizens in the broader democratic society.

Summary

Critics of higher education contend that the scope of a college education has become too narrow and students are not being adequately prepared for lives as productive and engaged citizens (Arum & Roksa, 2011). Others assert that colleges and universities should accept greater responsibility for bringing diverse students together and enabling them to appreciate each other's differences in preparation for lives beyond graduation as engaged and productive members of society (Hurtado, Milem, Clayton-Pederson, Allen, 1999).

Student engagement can lead to a range of positive outcomes during the undergraduate experience including the establishment of a sense of identity and the development of important cognitive skills (Perry 1968; Chickering & Reisser, 1993) as well as enhanced critical thinking and interpersonal skills (Kuh, 1995). The capacity for student engagement can be strengthened through opportunities for collaborative achievement with diverse peers in structured settings designed to challenge students and enable them to see the commonalities among their differences (Bok, 2005). Engagement with diversity provides valuable opportunities for students to become integrated into an increasingly multicultural society (Gurin et al., 2002; Umbach & Kuh, 2006) and broaden their awareness of social issues while becoming actively involved as productive and responsible citizens (Hurtado, 2009).

Colleges and universities must adapt to the changing needs in society and provide greater opportunities for student engagement and development in order to produce creative and flexible thinkers who can collaborate with others and make lasting contributions within our shared community (Bok, 2005). It is hypothesized that the college marching band experience provides student participants with a range of valuable opportunities for the cultivation of these skills.

The National Survey of Student Engagement

Overview

Given the range of desirable educational outcomes associated with student engagement (Pascarella & Terenzini, 2005), it is understandable that its assessment has become an important priority in higher education. No instrument is as widely administered and cited as the National Survey of Student Engagement (NSSE, 2012a). On an annual basis, the NSSE collects data from thousands of undergraduate students at hundreds of four-year colleges and universities to assess student development and provide important profiles of the ways students spend their time and what they are learning in the resultant "College Student Report." The instrument was created in 1998 and piloted in 1999. The first national administration occurred in 2000 (Kuh, 2001).

Since the creation of NSSE, 584 colleges and universities and approximately 3.2 million undergraduate students have completed the survey (NSSE, 2012a). Resultant data are provided to all participating institutions for internal analyses as well as comparisons with peer and national trends (Kuh, 2005). Because NSSE results are considered to have a "shelf life" of approximately four years, participating institutions are encouraged to re-administer the survey every three to four years to capture current trends (Kuh, 2001, p. 13).

Over the past decade, dozens of studies have been conducted to evaluate characteristics of undergraduate student engagement utilizing NSSE data (NSSE, 2014). Although none of these studies has sought to evaluate the characteristics of students who engage in the college marching band, others have targeted a range of curricular and co-curricular offerings ranging from student athletics (Umbach, Palmer, Kuh, & Hannah, 2006) to Greek life (Hayek, Carini, O'Day, & Kuh, 2002) to learning communities (Zhao & Kuh, 2004), as well as engagement with diversity (Kuh & Umbach, 2005). These studies seem to support prevailing theories in the literature (Astin,

1993; Pascarella & Terenzini, 2005) indicating that positive student engagement in educationally purposeful out-of-class activities can lead to a range of desirable outcomes in college.

Psychometric Properties

The NSSE assesses two aspects of college quality related to student engagement. The first dimension includes the time and effort students devote to their studies and educationally purposeful pursuits, including their engagement with diversity, peers, and faculty members. The second dimension examines the institutional efforts to promote and enhance offerings intended to increase student engagement on campus (Kuh, 2005).

The survey is organized into different sections requiring multiple-choice responses on most items. The designers of the NSSE have analyzed the survey using factor analysis to extract scales measuring different aspects of student engagement. These scales organize individual survey items into broad clusters or constructs assessing level of academic challenge, active and collaborative learning, student-faculty interaction, enriching educational experiences, and supportive campus environment (NSSE, 2012b). Referred to as "benchmarks of effective educational practice," the scales provide important information about the success of each institution in achieving student engagement along well-established developmental domains (Kuh, 2003b).

This study repeated the same factor analysis on NSSE items to verify that the original NSSE scales were psychometrically warranted with this population. The results showed that the target factors were either identical to the NSSE constructs (*reflective learning* and *higher order learning*), or included similar but not identical survey items (*engagement with diversity* and *personal social responsibility*). For the latter, scales were computed using the factors from the

analysis with this study's sample. Details about which items loaded on respective factors are outlined in Table 45 in the appendix.

The ability to group items into larger clusters through factor analysis can provide valuable information about the types and patterns of undergraduate student engagement. One of the primary assumptions about the NSSE is that the evaluation of clusters or benchmarks is an indirect reflection of the cognitive growth and personal development that students experience during college (Pascarella, Seifert, & Blaich, 2010). These analyses and resultant data have made the NSSE a popular and useful analytical tool in higher education today.

An evaluation of the psychometric properties of the NSSE requires a review of the steps taken to establish instrument validity and reliability. In order to ensure instrument validity, the degree to which an instrument measures what it claims to measure, the researchers who designed the NSSE attempted to phrase and define each item clearly, and revisions were made when necessary to maintain high content and face validity. Factor analyses were conducted to identify student engagement clusters and ensure construct validity (Kuh, 2003a).

Instrument reliability, the extent to which an instrument achieves comparable results for comparable samples, is another important psychometric property. Although a test-retest process would be an effective method of confirming NSSE reliability, the scope and timing of the NSSE administrations have rendered this strategy impractical. Additionally, this approach assumes all items remain the same for subsequent administrations but, in reality, content and wording on several NSSE items have been altered over time to improve clarity (Kuh, 2003a).

Internal psychometric analyses have been conducted on each of the early administrations of the NSSE encompassing thousands of students at hundreds of institutions. For each section of the NSSE, reliability coefficients (Cronbach's alpha) were determined. For example, in the

College Activities section, 22 items were presented relating to student activities both in and out of the classroom setting. Most of the items were positively correlated with desirable outcomes in college, and those that were negatively correlated were reverse-coded. The resultant reliability coefficient for the 22 College Activities items was 0.85. In addition, a principal components analysis of the 22 items identified four factors that accounted for approximately 45% of the variance in the responses (Kuh, 2003a).

Similar analyses were conducted for every section in the NSSE. Among these, analysis of the 15 items in the Educational and Personal Growth category yielded an alpha coefficient of 0.90, and analysis of the 11 items in the Opinions about Your School category yielded an alpha coefficient of 0.84. Intercorrelations for the items in each category were also determined and ranged from 0.22 to 0.65 (Kuh, 2003a). Overall, according to Kuh (2003a), the items appear to measure what they attempt to measure with satisfactory discrimination among students.

In evaluating the accuracy of any survey results, considerations must be paid to non-respondents. It is possible that students who do not participate in a survey are less engaged than those who do, and this could lead to erroneous conclusions from the data. In the case of the NSSE, 553 phone interviews were conducted with students from 21 institutions following the 2001 administration of the instrument. Multivariate analyses of variance were conducted to compare respondent results with non-respondent results. Contrary to expectations, the data indicated that non-respondents were slightly more engaged than the respondents, although some of these observations might be attributable to the favorable effects resulting from phone interviews. Overall, there did not appear to be any significant engagement differences between respondents and initial non-respondents (Kuh, 2003a).

In the absence of test-retest data, estimates of the NSSE stability were determined through three different techniques. The first estimate was a correlation of concordance reflecting the strength of association among scores from administrations of the survey in different years. Spearman's rho correlations were calculated for each of five benchmarks identified by NSSE ranging from 0.74 to 0.93, suggesting stable institutional data from one year to the next (Kuh, 2003a). Matched sample *t*-tests were also conducted to identify possible differences between student responses over a two-year period. The results indicated moderate to strong correlations with coefficients of between 0.60 and 0.96 (Kuh, 2003a). The final estimate of stability was determined through a modified version of a test-retest in which data were compared for a compensated sample of 129 students and an uncompensated sample of 440 students yielding a Pearson product moment correlation of 0.83 and suggesting respectable stability (Kuh, 2003a).

Although the NSSE is widely embraced and utilized in higher education, it is not without criticism. The validity of self-reported survey items has been questioned for some time (Pace, 1985). Some research suggests that participants may not be able to provide accurate responses to the survey items (Wentland & Smith, 1993). Some participants may deliberately provide false information (Aaker, Kumar, & Day, 1998), and still others exhibit a type of "halo" effect in which they provide inflated responses to present themselves in a better light (Pike, 1999). Even well-intentioned responses are limited as student *perceptions* of their own behavior. While acknowledging the validity of self-reported test scores is generally high, Cole and Gonyea (2010) found significantly lower correlations between self-reported and actual SAT scores than corresponding ACT scores. In cases where test data were inaccurate, students tended to inflate their scores.

Isolated conclusions about levels of student engagement in college from NSSE data must be met with some scrutiny. As Bandura (1986) observed, there are strong relationships between a student's cognitive skills, her environment, and her resultant patterns of engagement. Any assessment of engagement must take these into account. Consideration of a student's pre-college characteristics may also be useful in developing a range of improved educational responses to maximize the student's college engagement (Cole, Kennedy, & Ben-Avie, 2009).

Despite the effective practices and scientific evaluations touted on the NSSE website, an alarmingly high percentage of NSSE's claims are derived from outdated correlational studies conducted more than two decades ago, and many of NSSE's claims have not been subjected to thorough and independent third party scrutiny (Schneider, 2009). In his 2009 analysis, Schneider concluded that a disappointing lack of variance in some of the measures and a poor correlation with graduation rates make many of the NSSE results impractical for institutional comparisons.

Porter (2011) cited a range of problems with the NSSE including the ambiguous wording of some of the items. How, for example, might a student might distinguish between "serious" and frivolous" (p. 53)? In addition, Porter (2011) cautioned that the NSSE contains "educational jargon" that may not be easily interpreted or understood by the survey respondents (p. 53). Porter presented the concept of "thinking critically" as an example: "If I, as a higher education researcher, have trouble defining 'critical thinking,' how much can we expect the average college student to understand the concept, much less ensure that this understanding is similar across college students" (p. 53). Porter cited several additional examples of ambiguous items and concluded that the NSSE does not meet the minimum requirements for validity and reliability. Porter (2011) also referred to questionable survey benchmarks that have yet to be replicated in other research.

In response to these criticisms, McCormick and McClenney (2012) countered that Porter erroneously and disproportionately emphasized criterion validity while ignoring important evidence supporting the methodology utilized in the NSSE. The authors cited comprehensive focus group research conducted to improve the validity of the survey items and defended the value of the NSSE in providing important "*relative* comparisons" of student behaviors linked to desirable outcomes of a college education (McCormick & McClenney, 2012, p. 314).

Kuh (2003) had previously observed that the NSSE met each of five general conditions required for validity in self-reports: 1) the respondents know the information that is being requested of them, 2) survey items are presented in a clear and unambiguous manner, 3) requested information pertains to recent activities or events, 4) the items are perceived by participants as requiring serious responses, and 5) there is no threat, embarrassment, or violation of privacy posed by answering the items truthfully (Kuh, 2003).

An independent evaluation of NSSE was recently conducted to assess the effectiveness of NSSE benchmarks as predictors of educational outcomes (Pascarella, Seifert, & Blaich, 2010). The study was conducted in response to concerns about the potentially weak predictive and internal validity associated with student self-reported gains in the NSSE as well as questions about how much "gain" could be determined by an instrument that does not take pre-college measures into account (Pascarella et al., 2010). In an effort to evaluate the validity of the NSSE benchmarks in predicting seven important outcomes of a liberal arts education, the authors directly measured the outcomes using a pre-test and post-test longitudinal evaluation from a sample of nineteen institutions (Pascarella et al., 2010). Outcomes included effective reasoning, problem solving, moral character, inclination to inquire, lifelong learning, intercultural effectiveness, and personal well-being. Framing the study as the most comprehensive evaluation

of NSSE benchmark validity to date, the authors found a statistically significant relationship between NSSE benchmark scores and the target liberal arts outcomes, and they concluded that NSSE benchmark scores are "good proxy measures for growth in important educational outcomes such as critical thinking, moral reasoning, intercultural effectiveness, personal well-being, and a positive orientation toward literacy activities" (Pascarella et al., 2010, par. 24).

A subsequent study of NSSE data by Pike (2013) evaluated the validity of five primary NSSE benchmarks and found that the benchmarks can provide "dependable measures… related to important indicators of quality and effectiveness at the institutional level" with a minimum of 50 students in most cases (p. 165). Regression analyses confirmed significant relationships between benchmark scores and student retention rates. Pike (2013) concluded that the NSSE benchmarks are satisfactory measures for the evaluation and assessment of student engagement.

Examples from the Field

Although dozens of studies have been conducted utilizing NSSE data to evaluate various characteristics of student engagement in diverse academic settings (NSSE, 2014), none has sought to evaluate the potential benefits of marching band participation at the undergraduate level. Despite this omission, several studies have sought to evaluate outcomes related to other curricular and co-curricular offerings. A review of these findings is useful in illuminating some of institutional and organizational characteristics that may be desirable in promoting student engagement.

Membership in fraternities and sororities has been widely criticized as an impediment to undergraduate education (Astin, 1993; Kuh, Pascarella, & Wechsler, 1996; Maisel, 1990). However, Hayek, Carini, O'Day, and Kuh (2002) utilized NSSE data from 42,182 student

responses at 192 institutions and found that students involved in Greek life were equally, if not more, engaged in several practices including co-curricular involvement, student-faculty interaction, and community service. This study preceded the identification of later NSSE constructs and, as such, did not evaluate higher order learning or reflective learning among fraternity and sorority members.

Belcheir (2003) evaluated NSSE data from 305 Boise State first-year and senior students and found seniors were more likely than their first-year peers to engage in behaviors associated with active learning including making class presentations, working on a paper requiring the integration of various sources of information, and putting together concepts or ideas from other courses. Belcheir also found first-year and senior students at Boise State were less engaged with diversity than their peers at other urban institutions.

Learning communities enable students to work together cooperatively and interact socially toward the attainment of shared educational challenges (Brower & Detting, 1998). In these settings, students may establish connections with peer groups leading to greater academic success (Astin, 1984; Tinto, 1993) as well as interpersonal development and appreciation of diversity (Cabrera, Nora, Bernal, Terenxini, & Pascarella, 1998; Johnson & Johnson, 1994; Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1996). An analysis of NSSE responses of first-year and senior students at 365 four-year institutions corroborated previous findings and found that the positive and beneficial effects of learning community participation during the first-year remain moderately strong through senior year (Zhao & Kuh, 2004). The authors suggested that early immersion in learning communities may encourage continued participation and engagement in comparable offerings throughout the college experience.

In his review of three years of early NSSE data encompassing 285,000 first-year and senior students from over 600 colleges and universities, Kuh (2003b) identified some of the emerging patterns of engagement with undergraduate students. Among his findings, Kuh acknowledged that smaller schools tend to be more successful than larger schools in engaging students, but he drew attention to the wide range in levels of engagement among similarly sized institutions. Kuh also identified particular groups of students that are more engaged than their peers including: female students, full-time students, residential students, students who complete their degrees at their original institution, students who participate in learning communities, international students, and students who engage with diversity (Kuh, 2003b). On the diversity point, Kuh observed that students who are more engaged with diverse peers along racial/cultural and political/ideological lines are generally more involved in effective educational practices and achieve greater gains on many of the NSSE educational and developmental items.

In an analysis of 98,744 first-year and senior NSSE responses from 349 four-year colleges and universities, including 17,640 responses from 68 liberal arts institutions, Kuh and Umbach (2005) found students at liberal arts colleges engage with diversity with greater frequency than their counterparts at other institutions, including the types of large research universities selected for this study. These students are also more likely to exhibit gains in their capacity to engage with and understand other students with diverse backgrounds. The authors attributed this distinction to the relative "diversity-rich learning environments" at liberal arts colleges (p. 16). The study also found that students who engage with diversity exhibited greater active and collaborative learning characteristics, perceived their campus environment as more supportive, and were generally more satisfied with their overall college experience (Kuh & Umbach, 2005). These findings support the work of Chang (1999), who asserted that structural diversity alone is

not sufficient for student growth. Rather, colleges and universities must actively promote opportunities for active engagement with diversity among students.

An evaluation of "Documenting Effective Educational Practices" (DEEP) institutions, those demonstrating higher student engagement and graduation rates than their non-DEEP peer institutions, found that these institutions may allocate resources more effectively than their non-DEEP peers thereby creating greater opportunities for student engagement (Gansemer-Topf, Saunders, Schuh, & Shelley, 2004). Kuh (2005) suggested that all institutions can improve student engagement by adopting or reinforcing policies to build a climate of institutional engagement and reach students with a range of aspirations and abilities.

Umbach, Palmer, Kuh, and Hannah (2006) compared NSSE responses of 7,821 athletes with 49,407 non-athletes in their evaluation of first-year student athletes. All students were evaluated on three engagement scales (level of academic challenge, student-faculty interaction, and active and collaborative learning) as well as perception of campus environment, self-reported gains, and grade point average. Using hierarchical linear models (HLM), the researchers found student athletes to be at least as engaged as their non-athlete peers on most target scales, even though male athletes earned lower grades than their non-athlete peers even after controlling for pre-college academic achievement (Umbach et al., 2006). However, the evaluations were somewhat limited in scope and did not include constructs related to engagement with diversity, personal social characteristics, higher order learning, or reflective learning. Given the diversity among many revenue-generating athletic teams (Harper, Williams, & Blackman, 2013), it is unclear why the researchers did not consider this particular construct in conducting their evaluation.

In an attempt to evaluate potential non-response bias in the NSSE, a dissertation study at a small, private, Catholic school in Pennsylvania evaluating potential non-response bias within the

NSSE found no significant difference between respondents and non-respondents on seven socio-demographic variables and four of the five NSSE Benchmarks of Effective Educational Practice: Level of Academic Challenge, Active and Collaborative Learning, Enriching Educational Experiences, and Supportive Campus Environment (McInnis, 2006). Although some responses to additional items suggested greater levels of engagement for non-respondents, most reflected lower levels of engagement for non-respondents.

Occasionally, NSSE includes additional experimental items in the web version of the instrument to identify emerging trends or potential clusters. An evaluation of these items from the 2005 NSSE administration found that students who participated in a first-year course specifically designed to promote academic or social development experienced greater active and collaborative learning, interaction with faculty, support from the campus environment, and overall satisfaction with their college experience (Kuh, 2007).

An evaluation of NSSE responses of 11,000 first-year and senior students at 18 undergraduate colleges and universities (including four Historically Black Colleges and Universities and three Hispanic Serving Institutions) supported prior findings that pre-college characteristics are strong predictors of first-year academic success but also found student engagement remains a modest predictor of success (Kuh, et al., 2007). Of particular interest was the finding that engagement with historically underserved students resulted in greater gains in academic achievement and persistence from first to second year. The study also reviewed data from thousands of students at minority serving institutions and predominantly white institutions to confirm the construct validity of the NSSE for a range of educational settings (Kuh, Kinzie, Cruce, Shoup, & Gonyea, 2007).

The relative merit of online and distance learning opportunities has been the subject of debate in recent years (Wojciechowska, 2010). In their evaluation of 189,325 first-year and senior students who completed the NSSE in 2006, Chen, Gonyea, and Kuh (2008) found that college-aged students who enroll in distance learning programs are often as engaged as their traditional on-campus peers on many aspects of a higher education. However, engagement with diversity was not assessed, and on measures related to active and collaborative learning the distance learners were less engaged than their campus-based peers.

Although university development staff might hope that highly engaged students become generous alumni, a study by Moore (2008) found mixed results using NSSE benchmark data at 23 colleges and universities along with the correlated alumni giving rates. Although he found no significant relationship between giving and three of the NSSE benchmarks (Academic Challenge, Active and Collaborative Learning, and Student-Faculty Interaction), there was a moderately positive and significant relationship with alumni giving and the Supportive Campus Environment benchmark. Curiously, Moore also found a weakly negative but statistically significant relationship between giving and the Enriching Educational Experiences benchmark. Moore (2008) concluded that post-graduation institutional alumni outreach initiatives may be better predictors of alumni giving than undergraduate engagement.

One of the most important higher-order objectives of a college education is deep learning. Deep learning has been defined as "learning that takes root in our apparatus of understanding, in the embedded meanings that define us and that we use to define the world" (Tagg, 2003, p. 70). This type of learning enables students to connect disparate pieces of information into larger constructs and is considered a more advanced educational objective than memorization or surface learning. An evaluation of NSSE data and precollege cognitive measures from 1,457

first-year students at 19 colleges and universities utilized the NSSE "higher order learning," "integrative learning," and "reflective learning" benchmarks as indicators of deep learning and found a modest positive relationship between these benchmarks and student moral reasoning (Mayhew, Seifert, Pascarella, Nelson Laird, & Blaich, 2012).

In reflecting upon a decade of observations and experiences on college campuses, NSSE Director George Kuh sought to identify common characteristics among programs that are particularly effective in engaging students and enhancing their achievement across a range of educational offerings and outcomes (National Survey of Student Engagement, 2007). Kuh identified six conditions that characterize effective educational experiences: 1) the offerings require a significant investment of time and effort toward the attainment of purposeful tasks, 2) students are required to interact with instructors and peers in substantive ways, 3) students are engaged with diverse peers, 4) students receive frequent performance feedback, 5) students are provided with opportunities to reflect on their work on and off campus, and 6) students are encouraged to participate in more than one offering to foster connections and collaborations.

Summary

Colleges and universities are well aware of the important role of fostering student engagement in achieving the fundamental outcomes of a higher education. The National Survey of Student Engagement has been administered to more than three million undergraduate students at nearly six hundred colleges and universities since its first national administration in 2000 (NSSE, 2012a). Among the many reasons for its broad and sustained implementation is the organization of individual items within the NSSE into clusters or benchmarks that provide useful frameworks for interpreting the relative success of engagement initiatives in different

educational settings (NSSE, 2012b). Evaluations of instrument reliability were favorable (Kuh, 2003a), and a comprehensive study of NSSE benchmark validity concluded that resultant scores are valid proxy measures of a range of desirable outcomes of a higher education (Pascarella et al., 2010). Additional data on the target constructs for this study, including Cronbach's alpha reliability estimates for each of the scales, are provided in Chapter 4.

Although no prior studies have been conducted to evaluate student engagement in the college marching band utilizing NSSE data, dozens of other studies have been conducted to evaluate related outcomes of a college education (NSSE, 2014). An evaluation of students involved in Greek life found comparable levels of engagement as their non-Greek peers (Hayak et al., 2002), but the study did not address deep learning constructs including higher order learning and reflective learning. Umbach, Palmer, Kuh, and Hannah's (2006) evaluation of student athletes also found comparable levels of student engagement when compared with non-athletes on a number of constructs, but the study did not address engagement with diversity, personal social characteristics, or higher order learning. A notable finding from one NSSE study was that the benefits of student participation in first-year learning communities can remain strong through senior year (Zhao & Kuh, 2004).

The widespread use and acceptance of the National Survey of Student Engagement, as well as the demonstrated validity and reliability for broad research applications, made it a reasonable instrument for the evaluation of student engagement in the college marching band.

CHAPTER THREE: THE ROLE OF MUSIC

Overview

Although the focus of this paper is the evaluation of specific types of student engagement, the vehicle for that engagement is one of the most cognitively and physically demanding offerings in the undergraduate experience: the marching band. Few university programs require the high level of technical and expressive achievement as the college marching band. At the center of the marching band experience is the collaborative creation of music by a large organization with a shared purpose. Students who share in this process routinely set aside individual differences and demonstrate fundamental skills such as cooperation, flexibility, self-discipline, responsibility, and commitment in order to achieve their shared objectives.

The creation of music is not unique to the college marching band, but the intensity and precision required for participation in the college marching band requires a level of engagement, interdependency, and integration among diverse peers that may not be readily found elsewhere on the college campus. An understanding of the history and role of music in higher education and the broader society is essential for understanding the roots and branches of the modern college marching band as well as the resultant levels of student engagement exhibited by the participants.

Music has been an integral part of the human experience for thousands of years (Koelsch & Siebel, 2005) and its inclusion in a contemporary liberal arts education provides students with an array of social and psychological benefits (Bloom, 1987). As an artistic and intellectual pursuit (Dewey, 1980 edition), music has deep roots in our system of communication (Patel, 2008) and is an important factor in facilitating student growth and social cohesion (Levitin, 2006). Emerging research has confirmed functional and structural changes in the brain associated with

music performance (Wan & Schlaug, 2010). Perhaps most importantly, participation in music ensembles has been shown to encourage cooperative and collaborative behavior (Kokatski & Hallam, 2007) and promote an understanding and appreciation of differences (Dagaz, 2010) as well as a range of intellectual, personal, and social abilities (Hallam, 2010).

Although no significant studies have been undertaken to explore the relationship between college marching band participation and student engagement, there is a significant body of research related to the value of music in education encompassing historical, philosophical, psychological, and pedagogical dimensions. Each of these domains draws liberally from a variety of important and well-established bodies of research. These categories can be viewed together to obtain a more comprehensive understanding of the important role of music in the college marching band experience. In addition, a firsthand educator's account of the experience can illuminate some of the important characteristics that define the offering.

History

Human history boasts countless examples of the importance and prevalence of music in our lives. Some of the oldest human and protohuman artifacts are early musical instruments (Levitin, 2006), and various forms of music have been evident throughout every human culture across all ages from the dawn of man through modern times (Koelsch & Siebel, 2005). Today, we celebrate the role of music in reflecting our shared human experience, but the importance of participation in music performance as part of a broad liberal arts education has not always been universally understood.

Ancient civilizations and philosophers valued music for its contributions to the greater society. Plato referred to the ability of rhythm and harmony to instill grace in those who were

properly educated (Plato, as cited in *The Republic*), and Aristotle advocated the teaching of music along with reading, writing, drawing, and gymnastics as part of an "Ideal Education." Music, according to Aristotle, served a noble purpose and enabled young people to develop greater skills of critical perception and discernment (Aristotle, as cited in *Politics*, pp. 23-24).

The balanced educational philosophy of the ancient Greeks prevailed for centuries and inspired the formal *artes liberales* philosophy of the medieval period consisting of the *trivium*: grammar, logic, and rhetoric; and the *quadrivium*: music, arithmetic, geometry, and astronomy. The *artes liberales* model influenced early higher education and is still considered an ideal model by many because of its comprehensive focus on the humanities, earth sciences, and social sciences and its fundamental emphasis on instilling values and citizenship (Fallis, 2007).

Early American colonial colleges modeled their curricula after these traditional European designs. Although the largely Puritan colonial population was primarily concerned with the promotion of literacy and the development of cultured Christian gentlemen (Thelin, 2004), music and singing were emphasized in the training of clergy from the early days at Harvard College.

At the dawn of the American Revolution, John Adams recognized that the term *liberal* as it pertained to the *liberal arts* referred not to political inclinations but to the term *liberty*, where music, rhetoric, and philosophy were believed to be "the arts of free men and women" whose ultimate educational goal was "the opportunity to appreciate and participate in the arts" (Berliner, 2010, p. 114). These liberal arts were contrasted sharply with the lesser "servile arts," which were understood as the menial and vocational skills to be performed by the "unfree and indentured" laborers during the feudal period of the Middle Ages (Barber, 1998, p. 231). Adams embraced his responsibility to study politics and war so that his children could study history,

philosophy, geography, and his children's children could study music and the arts (Butterfield & Friedlaender, 1973).

By the late eighteenth century, colleges began to devise increasingly utilitarian courses of study. These efforts were fueled in part by the pragmatic models of Benjamin Franklin and Thomas Jefferson, who found great value in educating young men for the practical needs of a fledgling nation (Tyack, 1967). It was believed at that time that the cultivation of these skills would prepare young people to become responsible citizens in the new republic (Rudolph, 1990). Standing in contrast to the more narrowly tailored utilitarian design was *The Yale Report* of 1828, which lauded the diversity of the traditional liberal arts education in establishing a foundation for continued lifelong learning at an advanced level (Willis, Schubert, Bullough, Kridel, & Holton, 1993).

Shortly after the publication of *The Yale Report* of 1828, Lowell Mason collaborated with George James Webb to found the Boston Academy of Music in 1832, the first higher education institution in the United States devoted to the study of music (Crawford, 2001). Oberlin College began offering music courses by the 1850s, and the Oberlin Conservatory of Music was founded "to meet the demand for musical culture" in 1865 (Fairchild, 1883, p. 201).

The American Civil War created a need for skilled workers to rebuild a fractured nation, and the Morrill Land Grant Act of 1862 introduced an array of new offerings in higher education including technical programs as well as various opportunities for participation in music and the arts (Geiger, 1999). John Knowles Paine was hired by Harvard president Charles Eliot as the nation's first Professor of Music in 1875 (Patterson, 2012). It was around this time that college bands first began to appear through the Reserve Officer Training Corps (Colwell, 1998).

Music participation in higher education expanded in the early twentieth century with a dramatic increase in the number of musical groups on college campuses including marching bands and choral groups. However, these ensembles and organizations were typically structured as extracurricular offerings. As such, their objectives were primarily social and the quality of their music was not considered to be very high (Thelin, 2004). It was not until 1920 to 1940 that a dramatic increase in curricular offerings at many colleges and universities enabled students to pursue a range of diverse academic interests including music and the fine arts (Thelin, 2004).

Amid the rapid but uneven expansion of curricular offerings, advocates of participation in music and the arts were encouraged by the 1944 National Education Association report, *Education for All American Youth*, which responded to growing hierarchies in academia by asserting that all subjects must be regarded as equally valuable (Educational Policies Commission, 1944). As territorial disputes continued, C. P. Snow spoke out against the growing separation on college campuses between scientists who lacked any cultural interest and artists and humanists who shunned scientific inquiry. These conflicts, asserted Snow, were responsible for significant creative and intellectual losses within the larger society (Snow, 1959).

By the 1960s, buttressed by the launch of Sputnik in 1957 and the National Defense Education Act of 1958 (Clowse, 1981), the broad liberal arts model peaked with 47% of all bachelors degrees awarded in Arts and Sciences, but this number plummeted to 25% in the 1980s as universities channeled support and resources away from traditional liberal arts programs and toward more profitable vocational and professional majors (Geiger, 1998). A primary driver of the shift in higher education was an increasing emphasis on economic growth and prosperity. This trend, according to Fallis (2007), was in direct conflict with the multiversity's primary mission of "liberal learning, disinterested scholarship, and social citizenship" (p. 294).

New York University Dean Herbert London theorized that an increasing focus on measurement and evaluation also contributed to the decline of liberal arts offerings and left little room for subjects where achievement was more difficult to assess. London believed that a continuation of this trend would eventually undermine the integrity of the liberal arts model and threaten general learning (London, 1978). Similarly, the National Commission on Excellence in Education (1983) report, *A Nation at Risk*, warned that required courses in secondary education would send powerful messages about which subjects were most important. Notably, music participation was rarely a requirement.

Allan Bloom's (1987) *Closing of the American Mind* sharply criticized the abandonment of music and the liberal arts model by college faculty. Music, Bloom asserted, provides students with unique opportunities to experience the delicate relationship between emotion and rational thought, facilitates a fullness and completeness to the soul, and contributes to the psychological health of those who pursue it. Barber (1992) was less restrained in asserting that universities had become a "kindergarten for corporate society" in which students are "socialized, bullied, and brainwashed into market usefulness" at the expense of a broader liberal arts education (p. 205).

Despite these scathing critiques, many public and private institutions continued to openly steer students away from less profitable fields such as music (Zusman, 1998). In many cases, music and the arts became characterized as academically weak and therefore peripheral to the institution's primary teaching objectives. Even those institutions that placed a higher premium on participation in the arts acknowledged that these programs rarely generated income comparable to their costs (Zusman, 1998).

Hersh (1999) warned that a continued emphasis on narrow utilitarian objectives would provide students with an inferior and incomplete education and lead to a crisis in American

higher education as reflected in the widespread abandonment of cultural values including a shared sense of community and history. Jorgensen (2003) agreed in observing that the antidote to the incivility associated with cultural abandonment is the "rich, holistic, balanced, intellectual, physical, emotional, spiritual, and cultural development" afforded to students through a balanced liberal education (p. xii).

Ultimately, according to Bok (2005), the continuing emphasis on professional education is not only myopic but counterproductive. Although students who pursue vocational studies are often more easily able to find employment following graduation and advance in their careers during their first ten years, Bok observed that students who pursue non-vocational programs may make the greatest gains in the long run. With the passage of time, practical technical skills become less important than communication, interpersonal skills, creativity, and higher order thinking (Bok, 2005).

Philosophy

Attempts to understand the role of music participation in our shared human experience have been the domain of philosophers for two millennia. Some contemporary theories underscore the integrity of music as a noble and independent art form (Reimer, 1970; Elliott, 1995). Others view music as an indispensable component in a rigorous and intellectually challenging program of academic study (Dewey, 1934; Eisner, 2002). At the heart of the issue is the importance of music and the arts in facilitating fundamental ways of knowing.

During the early 19th century, the "Art for Art's Sake" movement espoused by Victor Cousin and other French artists, educators, and philosophers asserted that art should not serve any political or utilitarian purpose but should exist simply for its own intrinsic value (Bell-Villada,

1986). This philosophy became a rallying cry for many leading music educators in the late 20th century and remains popular today (Reimer, 1970).

One of the earliest position papers in support of the benefits of music instruction in the college experience was put forth by James Blake in 1861. Blake (1861) referred to music as the purest of the arts and argued for music instruction based upon its moral and aesthetic importance. Others advocated for the study of music as an intellectual evaluation of important literature (Tyler, 1906) as well as a noble means to advancing the culture of music in the broader U.S. population (McWhood, 1908).

The inclusion of music as an essential and vital component of a liberal arts education was a common theme in the early 20th century (Pratt, 1900; Boyd, 1925; Jones, 1929; Davison, 1949). Artists and educators agreed that music can facilitate the cultural objectives of a traditional liberal arts education (Bain, 1960; Murphy, 1953) even if that role is to develop avid participants and listeners rather than professional performers (Allen, 1935; Noble, 1926).

John Erskine, the first president of the Juilliard School of Music (initially founded as the Institute of Musical Art by Frank Damrosch in 1905), endorsed the inclusion of music in the general course of study for all college students (Erskine, 1931). Others supported college student participation in music as a means to providing a unique perspective into the thoughts and feelings related to important historical literary and philosophical ideas (Eames, 1931). And composers from Norman Dello Joio (1950) to Howard Hanson (1959) emphasized the fundamental importance of studying music in college as a means to becoming broadly educated.

John Dewey (1934) emphasized the importance of engaging students in the intellectual process of making or perceiving art in one or more of its many forms as a key component of his *aesthetic experience*. According to Dewey, an aesthetic experience is available to anyone who

seeks a greater understanding of our common culture through the expressive representation of our shared aspirations, hopes, ideals, and values. The benefits of the aesthetic experience extend to the entire community, as audience perception and reflection on the work of art are integral components in the process (Dewey, 1934).

Dewey resented the overwhelmingly narrow structures in education that emphasized reading, writing, and arithmetic above all other subjects. The primary purpose of education, he theorized, was to develop a broader type of intelligence that would enable students to make connections among disparate pieces of information and ultimately apply the knowledge they had developed for the greater good of society (Kliebard, 2004).

Elliot Eisner (2002), a disciple of John Dewey, believed the arts afford students unique opportunities to develop important cognitive skills not available through other academic offerings. Participation in the arts, Eisner asserted, enables students to navigate qualitative surroundings to make important distinctions and formulate ideas. Students who engage in music and the arts learn to recognize expressive characteristics in their environment and represent discoveries and experiences through creative forms that transcend the spoken word. Eisner further theorized that the arts encourage students to contemplate multiple potential solutions to a single problem and enthusiastically embrace diverse perspectives (Eisner, 2002).

Bennett Reimer (1970) advanced a somewhat narrow philosophy of music education in which musical works are understood as independent entities to be valued on their own intrinsic merit. Students who engage in the study of high quality music of all genres develop the ability to understand and appreciate feeling and expression as vital cognitive processes. Moreover, the opportunities for students to discover their own "essential humanness" are only available through participation in musical offerings (Reimer, 1989, p. 29).

In contrast to Reimer's philosophy, David Elliott (1995) proposed a "praxial" view of musicianship in which music is composed of both cognitive and action-oriented characteristics. That is, music listening *and* music performance are both vital to the full development of the unique types of thinking and knowing that may be fostered through music. Music perception, according to Elliott, requires some degree of proficiency in music performance, though less attention is paid to the actual works. Through performance and perception, the student musician is able to better understand the broad range of emotions and cultural information in music.

Like Reimer, Elliott asserted that the benefits afforded to students through music performance and perception are unique. These benefits enable the participants to experience substantial growth and elevate the self to increasing levels of cognitive complexity. Ultimately, students who participate in this challenging and enriching pursuit are able to become more fully developed than their non-music peers (Elliott, 1995).

Psychology

Education and music psychologists have expanded upon some of the dominant theories advanced by prominent philosophers in attempting to assess the potential benefits of music participation at various levels of study. The field of music psychology encompasses a range of sub-disciplines and draws liberally from sociological, anthropological, biological, philosophical, psychological, educational, and scientific traditions (Hodges & Sebald, 2011). An understanding of some of the pervasive themes in this literature is important in helping to frame the important and unique developmental benefits of music participation in the undergraduate experience.

Howard Gardner's (1983) *Frames of Mind: The Theory of Multiple Intelligences* identified music as one of seven discrete human intellectual capacities including visual-spatial, bodily-

kinesthetic, interpersonal, intrapersonal, linguistic, and logical-mathematical. Evidence of musical intelligence can be found in a person's awareness of and sensitivity to musical constructs including form, rhythm, and melody. According to Gardner (1983), every individual possesses each of the separate intelligences in varying degrees, but contemporary Western cultures tend to overemphasize linguistic and logical-mathematical intelligences to the detriment of the others, including music. Although support for Gardner's work has been widespread in the education community, and Gardner has continued to expand his theory to eight intelligences (2006), no study has yet to provide empirical evidence confirming its validity (Waterhouse, 2006).

Oliver Sacks (2007) explored a series of accounts illustrating the powerful effect of music for both performers and avid listeners. Among the many benefits associated with music: the logical and natural progression of musical passages enables individuals to more easily recall complex sequences or series of names and data; powerful musical phrases and themes may be harnessed by athletes to achieve greater physical proficiency and coordination; and some some legato and soothing musical passages enable patients suffering from dementia and Parkinson's disease to lessen the debilitating neurodegenerative effects of their illnesses (Sacks, 2007).

A primary underlying and recurring psychological benefit associated with music participation is its power of communication. Patel (2008) challenged a common misconception that music and language are processed independently by demonstrating important commonalities between these two cognitive functions. Music, like language, is unique to human beings. As an evolutionary phenomenon, music may have developed as an equally compelling form of communication to enable coordination and cooperation among disparate peoples (Patel, 2008).

Communication through music also includes the expression of ideas and feelings. According to Huron (2006), the communicative and expressive qualities of music can be deconstructed into

their respective roles in facilitating emotion, tension, imagination, prediction, reaction, and appraisal. The ability of music to meet, impede, or exceed expectations is built upon cognitive structures with deep biological roots and diverse cultural purposes. A central tenet in Huron's (2006) theory is that all human beings can and should be challenged intellectually through the creation, performance, and appreciation of great music.

The process of shared music-making may be particularly important during adolescence as individuals are engaged in meaningful and emotional journeys of self-discovery. Adolescence is a time when young people begin to define their personal preferences through music. As students explore their options, they assert their independence but also learn to engage with others who have different ideas, values, and cultural backgrounds. Music participation can be an important vehicle for the facilitation of this personal growth and development as "a vehicle for social bonding and societal cohesion" (Levitin, 2006, p. 232).

Complexity

Delving deeper into the distinctive qualities of music as they pertain to cognitive functioning, scientists have sought to identify important pathways in the brain dedicated to the processing of complex musical sound waves. Recent advances in the field of neuroscience have provided important insight into the complexity of the human mind as well as our ability to form and develop important physiological structures through participation in music.

Music is regarded as "one of the oldest and most basic socio-cognitive domains of the human species" and an important contributor in our ability to learn (Koelsch & Siebel, 2005, p. 578). Cross (2001) theorized that music may have played a vital evolutionary role in the development of the modern mind by providing a mechanism for connecting disparate abilities and skills in the

formation of the "multipurpose and adaptive cognitive capacities that make us human." (p. 38). Music may also have important biological roots in our ability to communicate. Koelsch and Siebel (2005) identified an important link between music and language in which the brain may actually interpret language as "a special case of music" at relatively young ages (p. 582).

Paul Pimsleur, of the famed Pimsleur Language Learning Program, contributed to a study finding that pitch discrimination was an important and positive factor in a student's ability to learn a foreign language (Pimsleur, Stockwell & Comrey, 1962). This study's findings were supported a few years later by another citing the value of basic musical properties including pitch, volume, intensity, time subsets, and tonal memory in facilitating foreign language ability (Leutenegger, Mueller, & Wershow, 1965).

Schlaug, Jancke, Huang, and Steinmetz (1994) utilized MRI analyses in determining that several regions of the brain, including the planum temporale (the portion of the brain linked to some language and reading skills), left auditory cortex, and corpus callosum, were larger for musicians than non-musicians. The implications for the increased size of the corpus callosum are important as the nerve fibers of this region of the brain connect the left and right hemispheres and affect bimanual motor skills and coordination (Wan & Schlaug, 2010).

A longitudinal study in China found that students who engage in music participation demonstrate significant improvement in verbal memory (Ho, Cheung, & Chan, 2003). The authors of the study theorized that students who receive instrumental music training engage specific regions of the brain related to memory processing. Students with fewer than six years of musical training exhibited modest gains in verbal memory, but increased musical study led to continued improvements in memory (Ho, Cheung, & Chan, 2003).

Music also appears to play an important role in the formation of new memories (Levitin, 2006). Specifically, memory can be aided and reinforced through emotional experiences precipitated by, or coinciding with, musical activities. This sequence is accomplished physiologically when the neurotransmitters and amygdalae, the portion of the brain associated with emotional processing and memory, work together to "tag" a memory as an important event (Levitin, 2006, p. 231). A recurring theme is the theory that musical memory appears to be more permanent and more pervasive than other forms of memory (Sacks, 2007).

Other researchers have theorized that music may influence fundamental biological functions in addition to complex brain functions such as acoustic analysis, auditory memory, and the processing of musical syntax. Koelsch and Siebel (2005) observed that music perception could potentially affect emotions, activate pre-motor representations, and influence the autonomic nervous, hormonal, and immune systems.

Empirical studies examining the relationship between music and intelligence have inspired the exploration of new avenues in music and its broader significance in the cognitive domain. As Levitin (2006) observed, "Music listening, performance, and composition engage nearly every area of the brain that we have so far identified, and involve nearly every neural subsystem" (p. 9). Making music in a group requires tremendous precision, sensitivity, and flexibility. This complex task relies upon nearly every known brain function including perception, action, cognition, social cognition, emotion, learning and memory (Koelsch & Siebel, 2005).

Whereas it was once believed that the brain remained relatively static in its hardwiring following an early developmental period, it is now believed that the brain continues to reorganize itself and develop throughout adulthood (Wan & Schlaug, 2010). This process, referred to as neuroplasciticy, can be difficult to assess, but proficient musicians may be ideal candidates for

the analyses because of the complexity of music as an eliciting stimulus as well as the degree to which musicians are exposed to this stimulus (Münte, Altenmüller, & Jäncke, 2002)

According to Pascual-Leone (2001), performing a musical instrument incorporates profound procedural and motor learning that results in "plastic reorganization" of the brain in which the brain adapts to experiences and generates new neural connections (p. 315). Münte, Altenmüller, and Jäncke (2002) observed that proficiency in music performance requires exceptional control of complex movement patterns within a framework of continuous auditory feedback. Pianists may be required to coordinate the bimanual production of up to 1,800 notes per minute while processing sensory and motor information and monitoring the performance with astounding precision. Understood in these terms, it is easy to appreciate why highly proficient music performance is regarded as one of the most complex human endeavors (Münte, at al., 2002).

Brain imaging technologies have confirmed physical and structural differences between musicians and non-musicians. Utilizing a voxel-by-voxel morphometric technique, Gaser and Schlaug (2003) were able to confirm differences in motor, auditory, and visual-spatial brain regions when comparing professional musicians, amateur musicians, and non-musicians between the ages of 18 and 40. They theorized that young musicians are able to develop complex motor auditory skills through the interpretation of musical notation and the simultaneous execution of motor commands and reaction to auditory output (Gaser & Schlaug, 2003).

Wan and Schlaug (2010) found that participation in musical performance may contribute to greater task proficiency in other related cognitive domains. Specifically, music performance has been associated with functional and structural changes in the intraparietal sulcus (IPS) region of the brain. Because the IPS is also linked with numeric operations, the authors theorized that the

shared neural resources between the two types of tasks may have implications for the interpretation and utilization of symbols (Wan & Schlaug, 2010).

The positive neurological effects of music participation appear to last well into adulthood. In a recent study by Hanna-Pladdy and MacKay (2011), 70 adults between the ages of 60 and 83 were asked to complete a series of neuropsychological assessments. Participants were grouped according to musical training and activity. The researchers found that participants with at least 10 years of musical training demonstrated higher achievement than their non-musician peers in naming, nonverbal memory, visuomotor skills, and overall cognitive flexibility. Greater levels of musical training generally correlated with higher achievement in these domains (Hanna-Pladdy & MacKay, 2011). Kraus and Chandrasekaran (2010) found that musical training yields benefits comparable to physical training in producing greater "fitness" of the brain (p. 599).

The general findings related to music and its physiological effects on the brain suggest that music participation may result in important and beneficial cognitive changes. The data also suggest that these benefits are measurable and lasting.

Community

Cross (2001) emphasized the role of community as a central feature in any musical process. He observed that music is similar to language in that neither can be completely private, and he theorized that music is best understood as a distinguishing characteristic of communities rather than individuals. Appreciating the communal and cultural role of music, as well as its potential to have different meanings for different people, is essential to appreciating its ability to affect the integration and socialization of individuals within larger groups.

Teenagers have long used music as a powerful socializing force in the development of self

and group identities (Hodges & Haack, 1996). In this sense, music may be understood as an effective incubator for the development of interpersonal skills and "a risk-free space for the exploration of social behavior" (Cross, 2001, pp. 37-38). A recent longitudinal study found that students who are involved in high school music ensembles are more likely to be concerned about community ethics as evident in the value they place upon establishing friendships, helping others in need, and addressing perceived social inequalities (Miksza, 2010). The researcher concluded that "participation in music ensembles is an important experience to consider when educating an academically competent and ethically minded citizenry" (Miksza, 2010, p. 21).

The National Education Longitudinal Study of 1988, which followed 25,000 high school students and monitored their success in school, provided empirical evidence for a link between music and academic achievement. The study found several differences between high school students who participated in music offerings in high school and those who did not. Most notably, students with music experience self-reported higher academic achievement in science, math, history, and English. The students with music experience were also more frequently elected to class officer positions, awarded academic honors, and recognized for good grades (Morrison, 1994). The results of this study suggest that students who participate in music as part of their education may be different from their non-band peers along several desirable vectors.

A survey of seventy-eight English undergraduate and post-graduate music students found that participants value the "social" experience of music performance as well as the opportunity to become part of something greater than one's self (Kokotsaki & Hallam, 2007). Contributing to the group outcome frequently led to feelings of satisfaction, achievement, and higher self-esteem. Within the ensemble setting, individuals reported being inspired by others' creativity,

developing greater concentration and stamina, and fostering a greater sense of identity and self-confidence (Kokotsaki & Hallam, 2007).

In addition, students cited a range of collaborative benefits including the ability to compromise and work effectively as a member of a team, offer mutual support and encouragement, and exchange ideas in order to achieve a shared objective. The authors theorized that the opportunity for music participants to assess their own performance against that of their peers is a critical factor in improving their self-esteem and confidence and enabling them to meet or exceed group objectives (Kokatski & Hallam, 2007).

Dagaz's (2010) profile of a competitive high school band found that band members were much more likely than their non-band peers to accept others with whom they might not share either cultural heritage or ideological beliefs. Dagaz observed that the band members supported each other and created a risk-free zone for expression of ideas and beliefs. Ultimately, these marching band members "learned not only to accept, but to appreciate differences through the strength of friendship and family-like ties" (Dagaz, 2010, p. 120). Moreover, the "intensity" of the marching band experience contributed to "an environment in which differences were explored and valued through conversations and connections" (Dagaz, 2010, p. 141). A subsequent study on band participation confirmed that social interaction was a primary motivational factor for high school students to continue to participate in band at the college level (Moder, 2012/3).

Bok (2005) encouraged participation in music and art offerings as an important opportunity for students to develop skills and pursue potential interests that may be used and further cultivated later in life. Participation in the music and the arts, according to Bok, can provide students with "a sense of the possibilities and limitations of different art forms and a feeling for

how individual talent, artistic tradition, and the surrounding society interact to produce great works" (p. 267).

Jensen (2001) cited important health benefits of participation in music offerings in enabling students to better understand and appreciate the emotional states that affect their lives. He asserted that individuals understand themselves better when they learn to express themselves through music because the process of making music "forces us to create, reflect, … ponder, react, and formulate… [and] enhances the systems that allow us to perceive and respond appropriately to a world rich with emotions and complex social structures" (p. 32).

In addition, a review of four databases from national longitudinal studies found that high school students who are engaged in the arts are more likely to succeed academically and socially than their non-arts peers and more likely to be civically engaged as teenagers and young adults (Catterall, Dumais, & Hampden-Thompson, 2012). As Colwell (1998) observed, the responsibilities associated with ensemble music participation can provide students with opportunities to develop a range of important skills:

> When students are held personally accountable to be present for every rehearsal and performance, for knowing their music, for being on time with all equipment so as to not waste any rehearsal time for themselves and others, they learn self-discipline, earn self-esteem, realize what it means to be responsible, and contribute to cooperative learning. Students actually mature in an organization with enforced expectations; the enforcement eventually becomes self-imposed. (par. 9)

A practical example of the benefits of music participation in higher education is illustrated by an initiative undertaken at the Georgia Institute of Technology. As Friedman (2006) recalled,

Georgia Tech was struggling to retain students with a graduation rate of only 65% when G. Wayne Clough became president of the university in 1994. Clough recognized deficiencies in student collaboration and creativity, and he theorized that admitting students trained in music would cultivate a more dynamic environment, make the learning process more enjoyable, and encourage one-dimensional students to become multi-dimensional.

According to President Clough, "The idea was that people who have other interests tend to be able to communicate, tend to be more social, tend to ask for help more readily when they need help, tend to help others more who need help, tend to think horizontally… to tie things together from different disciplines and fields" (Friedman, 2006, p. 325). Clough observed that students who play musical instruments as members of a band have greater social skills and musicians are better at "synthesizing and orchestrating insights from many different fields" (p. 326).

Clough put his theory into practice and authorized a targeted admissions effort at Georgia Tech to admit significantly higher numbers of students with music performance experience. Over a ten-year period, from 1994 to 2005, the number of incoming students with experience on a musical instrument or in a musical ensemble increased to 50%. In addition to the creation of a more dynamic educational environment, Clough was able to achieve an 11% increase in the graduation rate from 65 to 76% (Friedman, 2006, p. 325).

Harvard University recently convened a Task Force on the Arts at the request of Harvard President, Drew Faust (Harvard, 2008). The Task Force Committee was charged with evaluating the role of the arts in the campus curriculum and community and making recommendations to Faust regarding the future of the arts at Harvard University. The Committee determined that the arts must be made "an integral part of the cognitive life of the university" in order to "allow innovation and imagination to thrive" in the Harvard campus community (Harvard, 2008, p. 1).

A broader objective was to "educate and empower creative minds across all disciplines" for the collaborative challenges they will face in the 21st century (Harvard, 2008, p. 1).

The College Marching Band

Early college marching bands evolved out of the student club tradition in which social opportunities were often valued over musical integrity (Thelin, 2004). Today, students in the college marching band represent their universities for hundreds of thousands of fans at well-attended events on campus and throughout the country. Many college football games are televised nationally, and there are usually one or more trips to other colleges and universities during the fall in addition to the possibility of bowl travel at the end of the season. For many students, alumni, faculty, and fans, the college marching band is the embodiment of the spirit of the university.

During the past century, the structure and objectives of most Division-I marching bands have changed dramatically, but recognition and support of these programs have not always kept pace. Perhaps not surprisingly, no significant studies have been undertaken to evaluate the potential benefits of student engagement through participation in marching band at the college level.

College marching bands are generally classified along with pep bands as "athletic bands" within higher education. According to the College Band Directors National Association (2008), the role of college athletic bands is to promote institutional tradition and pride; serve a range of institutional partners including university administrators, alumni, community members, and students; and increase the exposure of the university through performances and outreach efforts. The most important role of athletic bands, according to the report, is to "contribute to the musical and social education of their participating members" (p. 1).

Through the social interactions required in the college marching band, each participating student is able to cultivate an important sense of self as defined by Mead (1934). In addition, the intimate cooperation and communal spirit and camaraderie of the college marching band leads to the development of what Cooley (1909) described as the "primary group." That is, the band members work together in an intensely collaborative and tightly-knit group with shared standards and expectations.

Membership in a marching band can also provide students with important opportunities to "*belong*" in a structured and purposeful organization and promote feelings of "*worth* and *accomplishment*" (Isch, 1965, p. 97). The educational conditions associated with the marching band, including a range of diverse students of varying ability levels actively working together toward shared group tasks, may be ideal for the promotion of "complex instruction" (Cohen, Scarloss, & Arellano, 1999).

Most college marching bands are composed of both instrumentalists and visual performers including a dance team, color guard, and/or baton twirlers. The total number of participants in Division-I college marching bands, as reflected in the sample of 20 institutions selected for this study, is generally between 1% (Indiana University, the University of Arizona, the University of Houston) and 2% (Mississippi State University) of the respective undergraduate enrollments. Despite the competition and prestige associated with participation in a college marching band, the majority of participants are non-music majors. In the case of Michigan State, for example, only 10% of the 300 marching band students are music majors (Krause, 2011).

Leadership structures within the bands can vary widely but tend to include at least one full time director and a support staff composed of either part-time instructors or graduate students. In addition to the designated staff positions, there are usually several student leadership positions

available for participants including one or more drum majors (student conductors), section leaders, and student officers or executive board members. This network of leadership is charged with spearheading the instructional process to ensure that educational objectives are being met while providing an important network of encouragement and support for the band members (Purdue University Marching Band, 2015; University of Florida Gator Band, 2014; Western Carolina University, 2012).

Participation in a college marching band is not an easy endeavor. Auditions are required for many programs, and some bands rehearse daily in addition to rehearsals prior to Saturday games (Krause, 2011). The rehearsals alone often range between six and twelve hours per week (Marshall, 2011). Attracting and enrolling new band members, particularly at academically selective institutions, may be a daunting task. Incoming first-year students are often intimidated at the prospect of managing a full college course load, and the decision to allocate additional time to participate in the labor- and time-intensive marching band is not made lightly.

Students who ultimately join the college marching band cite various reasons for their decisions. According to a survey of 2,933 undergraduate non-music majors from 95 different colleges and universities representing 37 states, the top three reasons for participation in a college athletic band (including both the marching band and pep band) were love for playing a musical instrument, overall high school band experience, and the self-pride in being a member of a college band (Moder, 2013). Students who participated in athletic ensembles were more likely than students in traditional concert (indoor) ensembles to value the social aspects related to being involved with the band. However, over half of the students who participated in the study (56%) participated in more than one ensemble, and fewer than one in five (18%) limited their participation to the marching band (Moder, 2013).

During the preseason camp, band members may be expected to rehearse for up to 10 hours per day over the one- to two-week period. Conditions on a football field in late August can be inhospitable, and the volume of material to be learned is extensive. The ensemble must learn the music and marching routines for the early field shows as well as all of the music to be performed in the stands and at pep rallies. In some cases, there are more rehearsal hours during the preseason camp than in the entire remainder of the fall season. The purpose of this intensive pre-season training period is to provide a distraction-free environment with a singular focus to achieve the group objectives.

Each marching band member makes significant sacrifices in order to meet the expectations of the organization. The volume of musical and visual material is substantial, and some students may be asked to learn different instruments as needed by the ensemble, particularly in smaller programs. In most traditional wind band settings, the wind instruments are roughly divided equally between woodwind and brass. In large outdoor environments, brass instruments achieve greater volume and projection and are therefore favored by many marching bands. Some programs, including Boston College, encourage woodwind instrumentalists to "cross-train" to brass instruments in order to enable the ensemble to achieve a greater presence (Boston College Marching Band, 2015).

Marching percussion is a separate category. Most marching bands feature a moving percussion section referred to as a "battery." Instrumentation in the battery typically includes marching snare drums, tenor drums, and bass drums. Each member of the battery must perform with sufficient precision to achieve the coordinated effect of a single percussionist performing on a drum set. Some marching bands also offer a "front ensemble" or "pit" composed of stationary

mallet and auxiliary percussion instruments staged along the front sideline during field performances.

The standards and expectations for rehearsals and performances are high. Band members are typically required to learn dozens of drill formations, and some programs test individual members to confirm that their music has been memorized (Krause, 2011). Depending upon the location of the college or university, environmental conditions over a single season may range from oppressive heat and humidity to rain, sleet, and snow. Regardless of the weather, band members are required to rehearse outdoors and continue to produce high quality performances throughout the semester.

Game day for marching band members typically starts several hours prior to kickoff. Band members report early to review performance material and participate in an array of pre-game ceremonies and festivities ranging from parades to pep rallies. Although the experience of performing for capacity crowds and a successful football team is widely celebrated, band members are also required to perform with the same energy and enthusiasm for significantly smaller audiences and losing teams.

The physical demands of participation can be substantial. An analysis of 15 high school marching band members found physical exertion on a treadmill with instruments at slower and faster tempi resulted in metabolic equivalent (MET) values of 4.5 and 6.0 respectively (Erdmann, Graham, Radlo, & Knepler, 2003). These values exceeded the moderate recommended value of 4.0 METs for adults, suggesting that marching band participation over several months may yield important physical benefits for participants. An evaluation of 24 college marching band members during preseason camp found these students exhibited an energy balance of -661

kilocalories +/- 785 kilocalories while rehearsing for up to 9.5 hours per day (Wenta, Zerbe, Schoenknecht, & Luetkemeier, 2011).

In a study of 49 participants in the Arizona State Marching Band, Cowen (2006) found that band members take a significantly higher number of steps, a reflection of overall physical activity, on rehearsal days (M=13,258.8, SD=4,842.7) and game days (M=16,174.6, SD=6,456.4) than on non-band days (M=8,337.5, SD=4,015.7). An evaluation of cardiovascular fitness among 269 college marching band members utilizing the Forestry Step Test confirmed increasing oxygen demand proportionate with faster marching tempi (Pascoe, Smith, Strecker, & Good, 2005). Members whose heart rates were monitored during field performances maintained activity in the 70-85% range depending upon musical and marching requirements. The authors concluded that adequate muscle strength and endurance are essential for all college marching band participants (Pascoe et al., 2005).

With the intense physical demands associated with participation in the college marching band, particularly during the preseason camp, injuries can be inevitable. An assessment of college marching band participants found an injury rate of 124 incidents per 1,000 rehearsals/performances (Moffit, Russ, & Mansell, 2015). The authors concluded that the strenuous requirements inherent in the college marching band setting require additional attention and support from athletic trainers and health care personnel.

Some distinctions have been identified in the way marching band members respond to related physical challenges. An epidemiological evaluation of 246 students in a prestigious college marching band found female members were more likely than their male counterparts to identify pain sites and related physical stress as a result of participation. In addition, music majors were significantly more likely than non-music majors to indicate higher levels of pain and discontinue

participation due to related pain (Hatheway & Chesky, 2013). The authors observed that a culture of encouraging members to "play through the pain" persists in the college marching band activity, and many students are afraid of being categorized as weak or lazy if they cite injuries as a rationale for suspending participation.

The close bonds and shared experiences among marching band members can be expressed in both positive and negative peer cultures. Hazing is a particularly destructive form of peer behavior that can have profound and lasting effects. Hazing has deep roots in many aspects of the college culture including Greek life (Hollmann, 2002) and athletics (Fields, Collins, and Comstock, 2007). Considering these traditions, as well as the role of the military model in forming today's marching band (Coachman, 2007) and the pervasive hazing issues associated with the military (Chu, 2012), it is perhaps not surprising to find that as many as 30% of college marching band members have witnessed some level of hazing (Silveira & Hudson, 2015).

Although an early theory about hazing suggested that individuals who participate in shared adversity will develop an affinity for each other (Schachter, 1959), more recent research has shown that these practices diminish cohesion within groups and organizations (Van Raalte, Cornelius, Linder, & Brewer, 2007). Even non-violent hazing practices can be harmful to the student participants as well as the reputation of the organization.

Student retention can be a challenge in any college marching band. The requirements of participation are substantial, and attrition is often high, particularly between sophomore and junior year. According to one study, those who do persist in the college marching band cite their enjoyment of the experience as a prime factor. The same students tend to exhibit characteristics consistent with *Sensing*, *Thinking*, and *Judging* (whether *Introverted* or *Extroverted*) on the Meyers-Briggs scale (Young, 2001). A separate survey of 528 upper class college marching

band students from eight universities found scholarship assistance, intrinsic and extrinsic motivation, membership in a community, and avoidance of burnout factors were significant predictors of a student's decision to remain in the band (Hill, 2012).

Although building a sense of community is an important priority for most programs, and one of the primary objectives of this study was to evaluate engagement with diversity within the band communities, there is evidence that some college marching bands are not adequately cultivating and celebrating a culture of diversity within their ranks. At Florida State University, for example, the percentage of Black students in the Marching Chiefs is lower than the 12% among the general undergraduate population and well below the numbers represented on their top-ranked football team (Sneiderman, 2000).

One theory for the disparity between Black student enrollment and band participation, according to former Georgia Tech band director, Bucky Johnson, is that the traditional styles of marching in many college marching bands are not as appealing as the flashier "show" style performances at Historically Black Colleges and Universities (Sneiderman, 2000, p. 31). This latter style, popularized by schools like Florida A&M, can be traced to the influence of African American drill sergeants in World War I (Malone, 1990). Another theory proposed by Melvin Miles, director of the Morgan State University Marching Band, is simply that many inner city schools, home to large percentages of minority students, have been steadily eliminating their instrumental music programs (Sneiderman, 2000).

Diversity within college marching bands is not limited to racial characteristics but includes gender differences as well. Within the brass and percussion sections of most college marching bands male students traditionally outnumber female students, but there is evidence that an increasingly number of female students are crossing the traditional boundaries resulting from the

"testosternone-based attitude" prevalent in many college marching bands (Marshall, 2011, p. 26). Female students who cross these boundaries often recognize and adopt terms such as "brass chick" and "drummer girl" to destabilize and eventually redefine the traditional roles of participants based upon gender (Marshall, 2011, p. 26).

One possible model for integration and cohesion in an instrumental music setting may be found in the "Sistema" orchestra program founded in Venezuela by Jose Antonio Abreu in 1975 (Majno, 2012). The program was modeled on group/ensemble playing rather than individual playing from its inception to encourage "better community life, such as respect, equality, sharing, [and] cohesion" as well as "shared passion and enthusiasm" (Majno, 2012, p. 58). Despite claims that the program places a greater emphasis on discipline and obedience than creativity and critical thinking (Baker, 2014), El Sistema is widely celebrated for exemplifying the notion that making music with others can break down barriers and lead to "integration and inclusion" (Majno, 2012, p. 58).

This concept is not without precedent. In at least one high school marching band setting, students reported that the band community is more accepting of racial, cultural, socioeconomic and ideological diversity than their non-band peers (Dagaz, 2010). It is theorized that the marching band setting may be ideal for fostering relationships among students with different backgrounds precisely because the activity brings together a range of participants that might not ordinarily have the opportunity to interact. The benefits of student interaction and engagement with diversity in the marching band can be felt throughout the community.

The theory of integration and inclusion through band participation may have important implications well beyond the practice field. One of the most important priorities for American schools is to prepare students for lives as productive citizens in our increasingly diverse

democratic society (Labaree, 1997). As Haring-Smith (2012) observed, "The foundations of our society and our democratic government require us to be able to talk respectfully with people who hold different opinions and have different backgrounds than we do" (par. 7). *E pluribus unum*. The college marching band may serve as an incubation environment for cultivating the types of skills required for this to occur. Students who learn to interact with each other and work through challenges as interconnected members of a community are more likely to become responsible citizens, vote in elections, and accept leadership positions within their communities upon graduation (Bowen, 1977; Pascarella & Terenzini, 2005).

Engaging with others in common pursuits is a critical component in the development of healthy communities. Moreover, establishing a sense of trust and interdependence among participants through participation in programs requiring this level of engagement, according to the Carnegie Foundation for the Advancement of Teaching President, Lee Shulman (2002), is critical to healthy student development. In this sense, providing students with opportunities to engage with others in challenging and collaborative pursuits like those found in the college marching band is not simply an objective for extracurricular programs but a fundamental objective of a higher education.

All told, considering pre-season training, fall rehearsals, and myriad performances, participation in a college marching band for one season may constitute more than 200 hours of intensive and educationally purposeful professional supervision and instruction. The marching band requires students to be actively engaged at all times, and the resultant product is widely evaluated by instructional staff, university administrators, and community members. Whereas many other forms of academic achievement at the college level are singular and private in nature, marching band achievement is inherently communal and inescapably public. Participation in the

college marching band may afford a level of student involvement and engagement that is not expected elsewhere in the university setting.

Despite the substantial cognitive and expressive skills required for participation in the college marching band, most of these ensembles award either no academic credit or one credit hour for participation. This may be due, in part, to a perception that marching band is an extra-curricular activity rather than a valuable academic pursuit. At Boston College, a student can fulfill the fine arts core requirement with 40 class hours of "Introduction to Music" or "History of Rock and Roll and Popular Music in the United States," but receive no academic recognition for more than 200 hours of reading, rehearsing, memorizing, and performing music as a member of the Marching Band (Boston College, 2015). Despite the widely acknowledged precision and proficiency of these ensembles, marching bands are still not always appreciated for their developmental and educational value within some music departments and student affairs programs.

The amount of time students allocate toward participation in the college marching band is significant for two important reasons. First, the more than 200 hours band students spend in this educationally purposeful endeavor is comparable to or greater than the amount of time they would spend in a full semester course load of five 40-hour classes. This constitutes a significant amount of time on task for the students to work in a challenging and purposeful educational environment with faculty and peer mentors.

Second, students who participate in the college marching band must forego the income that could be generated if they were to seek employment during comparable hours. Over the course of a single semester, at an average salary of $10/hour, this amount could reasonably exceed $2,000 per student. Given the soaring costs associated with higher education, one might

reasonably expect that many of these students would be required to contribute financially to their own tuition costs. The fact that so many students elect to participate in this difficult and time-consuming activity may reflect the character of the students who commit to the college marching band experience as well as the socioeconomic conditions that enable them to do so.

Although participation in the college marching band does not guarantee students will develop the range of skills associated with individual and ensemble music participation, it is hypothesized that the college marching band experience provides students with distinctive opportunities for development and growth that may not be readily available elsewhere in the undergraduate experience. Because the evidence of related skills among participants in the college marching band has not yet been empirically evaluated and confirmed, it is possible that college administrators do not yet fully appreciate the role of the college marching band in providing important educational opportunities that may be associated with fundamental outcomes of a higher education.

Summary

The primary focus of this study was to evaluate student engagement among college marching band participants, but the types and degrees of engagement afforded to students in the college marching band require some level of proficiency in one of the most powerful and enduring forms of human expression: music performance. It is through this lens that any measure of student engagement in the marching band must be viewed.

Philosophers have celebrated the role of music and the arts in promoting an understanding of our common culture (Dewey, 1934), and psychologists have cited an array of music benefits ranging from physical proficiency and coordination (Sacks, 2007) to communication (Patel,

2008) and expression (Huron, 2006). Neuroscientists have identified distinct physical differences in the brain structures of musicians vs. non-musicians (Schlaug et al., 1994; Wan & Schlaug, 2010), and there is mounting evidence that music training can result in improved memory, visuomotor skills, and cognitive flexibility (Hanna-Pladdy & McKay, 2011) as well as greater overall brain "fitness" (Kraus & Chandrasekaran, 2010, p. 599).

Advocacy efforts on behalf of the value of music in education have ranged from its moral and aesthetic importance (Blake, 1861), to its ability to illuminate literary and philosophical ideas (Eames, 1931), to its role in facilitating the broad education of participants (Dello Joio, 1950; Hanson, 1959). Contemporary efforts have cited improved performance in a range of cognitive domains from IQ scores to foreign language proficiency (Welch & Greene, 1995) and SAT scores (Martin, 1995). But the role of music in promoting responsibility (Colwell, 1998) and community (Cross, 2001) may be the most compelling rationale of all. Music performance has been associated with healthy socialization among student participants (Hodges & Haack, 1996), greater satisfaction, achievement, and self esteem (Kokatsaki & Hallam, 2007), and the cultivation of an "ethically minded citizenry" (Miksza, 2010, p. 21). Student engagement theory provides the framework, but music participation is the vehicle for growth.

The college marching band, through its combination of demanding and educationally purposeful opportunities for collaborative achievement among diverse peers, may provide participants with distinctive opportunities for positive and sustained engagement.

CHAPTER FOUR: METHODOLOGY

Overview

The purpose of this study was to evaluate the types and degrees of engagement indicated by college marching band students as compared with those of their non-band peers. In determining the research questions and hypotheses, consideration was given to widely held beliefs about the developmental benefits of student engagement (Astin, 1999; Kuh, 2009; Pascarella & Terenzini, 2005) and music education (Reimer, 1970; Colwell, 1998; Hallam, 2010) as well as informal observations of college marching band members by their respective directors.

Following a thorough review of two national assessment instruments, items from the National Survey of Student Engagement (NSSE) were selected for administration to marching band members at selected universities with NCAA Division-I athletic programs for which institutional NSSE data were already available. Surveys were administered to participating marching band students by their directors, and comparisons were made between those responses and the responses of a representative sample of the general undergraduate populations from the corresponding universities provided by the NSSE Institute. In addition to the individual survey items, four constructs were selected based upon theories in the literature as well as informal observations suggesting that increased engagement with diversity may lead to cognitive differences among band members as well as greater personal social responsibility.

This chapter provides an overview of the theoretical design along with the research questions and hypotheses that guided the study. The independent and dependent variables are defined, and parameters for the band and NSSE samples are provided. Related benchmarks identified by NSSE (National Survey of Student Engagement, 2012b) are confirmed or modified through factor analysis, and comparisons between first-year and senior band members are proposed as a

proxy for student growth. Lastly, blocked stepwise regression analyses are conducted to take pre-college and co-existing student characteristics into account and obtain a more comprehensive understanding of the observed differences among participants that may be attributed to participation in the college marching band.

Research Objectives

A primary objective of this study was to determine whether there were any systematic differences in student engagement between college marching band members and non-band members at a representative sample of colleges and universities. A secondary objective was to determine whether and how the first-year and senior student profiles of engagement differed between marching band and non-band members. A final objective was to determine whether any resultant changes between band/non-band and first-year/senior students remained after accounting for pre-college and co-existing characteristics.

The *independent variables* in this study are participation in the college marching band, the student's year in college, and the pre-college and co-existing student characteristics. The *dependent variables* in this study are the level of engagement indicated by students on four previously identified constructs (Kuh, 2003a; NSSE, 2009) that were confirmed or modified through factor analysis. These constructs were selected based upon the theory that increased engagement with diversity, a potential component of the college marching band experience, may lead to cognitive differences among band members as well as increased engagement and responsibility within the broader community. The primary *hypothesis* is that students who participate in a college marching band are more likely than their non-band peers to indicate patterns of behavior consistent with positive and productive engagement and responsibility

within their respective communities. Individual hypotheses for each research question, along with corresponding rationales, are provided below.

Question 1: To what extent do marching band participants differ from non-marching band participants on selected measures of student engagement from the National Survey of Student Engagement?

Hypothesis 1: The profile of college marching band students will differ significantly from that of their non-band peers reflecting greater positive engagement within the university community than their non-band peers according to benchmarks modeled by NSSE and confirmed or modified through factor analysis.

Rationale: Marching band students are provided with educationally purposeful and challenging collaborative challenges under close and careful supervision. Students who learn from challenging and supportive mentors may experience greater cognitive growth as a result of those interactions (Sanford, 1967; Perry, 1968). Students in the marching band are routinely challenged to work hard toward the achievement of collaborative group goals. These conditions have been associated with greater student engagement and personal development (Astin, 1999; Pascarella & Terenzini, 2005; Kuh, 2009). In addition, students who interact closely with diverse peers toward collaborative pursuits may become more integrated in an increasingly multicultural society (Hurtado, 2006; Umbach & Kuh, 2006). Any resultant differences among students should be reflected as higher scores on related constructs.

Question 2: To what extent are there differences in measures of student engagement between marching band and non-marching band students during first-year and senior year?

Hypothesis 2: Measures of student engagement will differ significantly between first-year band and non-band students as well as between senior band and non-band students.

Rationale: Students at all levels of participation in the marching band are required to work with diverse peers toward collaborative goals. When students' preconceived notions and ideas are challenged, they may experience cognitive dissonance and subsequent growth (Perry, 1968; Kegan, 1994). Students who learn to successfully integrate different ideas and perspectives may experience additional growth and development during the undergraduate years (Chickering & Reisser, 1993). The college marching band experience provides all participants with significant and sustained opportunities for collaborative achievement with diverse peers under the supervision of mentors who provide a careful balance of challenge and support. These conditions may lead to greater student engagement among band students than non-band students at all levels.

Question 3: Within marching band and non-marching band populations, to what extent do first-year students differ from senior students on selected measures of student engagement?

Hypothesis 3: Marching band students will indicate greater growth and development than their non-band peers over the course of their undergraduate experience. This change will be manifest in greater engagement with diversity, greater higher-order and reflective learning, and greater personal social responsibility among marching band members.

Rationale: Both marching band and non-band students are likely to be provided with a range of opportunities for engagement as they proceed through the undergraduate experience but, in several measures related to engagement with diversity, higher order thinking, and personal social responsibility, marching band members may experience greater degrees or levels of

development than their non-band peers. Over the course of their participation in the college marching band, these students must learn to cooperate with others who do not share their views and may challenge their assertions. Students who have been exposed to these types of conditions over longer periods of time may indicate greater levels of engagement.

Research Design & Instrumentation

According to the general arc of this research study, inspired by both informal observations and previous research, it is theorized that the process of participating in a college marching band facilitates greater student engagement among diverse peers, which, along with the technical and artistic requirements associated with music performance, leads to increased cognitive development. Students who experience greater engagement with diversity and collaborative achievement during college may be more likely to indicate behaviors and skills associated with responsible citizenship. In accordance with this rationale, four related constructs were selected to assess engagement with diversity, higher order and reflective learning, and personal social responsibility among band students and non-band students.

In order to conduct the study, an instrument was required that could capture the types and degrees of student engagement related to these constructs during the undergraduate experience. The National Survey of Student Engagement (NSSE) collects a range of useful data about how students act and interact with each other during the college experience. Responses to survey items can be evaluated individually or collectively to obtain a more comprehensive picture of student engagement. The organization of individual items within the NSSE into constructs or benchmarks provides a particularly useful framework for interpreting the relative success of engagement initiatives in different educational settings (NSSE, 2012b).

Nearly all of the items selected for inclusion in the survey for this study were extracted directly from the National Survey of Student Engagement with permission from the NSSE Institute. The National Survey of Student Engagement has been administered to over three million undergraduate students at approximately six hundred colleges and universities since its first national administration in 2000 (NSSE, 2012a). It is a widely respected instrument for the assessment of college student engagement, and an independent evaluation of NSSE benchmarks concluded that the resultant scores are valid proxy measures of a range of desirable outcomes of a higher education (Pascarella et al., 2010).

Four NSSE constructs related to diversity, reflective learning, higher order learning, and personal social responsibility provide a useful framework for the evaluation of this theory. The first, initially identified by Kuh (2003a), is a diversity construct composed of three NSSE items. The first two items asked students to indicate the frequency with which they engaged in related activities along a four-point Likert scale from "Never" to "Very often." The third item, modified from the original 2003 version, asked students to indicate the extent to which their institution emphasized activities along a four-point Likert scale from "Very little" to "Very much." The three items in the updated NSSE (2011b) *Diversity* construct (first-year alpha = 0.67, senior year alpha = 0.68) are as follows:

- Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values
- Had serious conversations with students of a different race or ethnicity than your own
- Encouraging contact among students from different economic, social, and racial or ethnic backgrounds

Two constructs related to "deep-level processing," proposed by Nelson Laird, Shoup, and Kuh (2005), were selected as models for the assessment of cognitive development. Deep-level processing refers to the ability of students to evaluate and appreciate the underlying concepts in information to achieve deeper levels of knowing and understanding. Students who achieve deep-level processing may develop the ability to integrate and transfer knowledge and information more quickly and ultimately enjoy greater academic success (Biggs, 1987). According to Tagg (2003), "Deep learning is learning that takes root in our apparatus of understanding, in the embedded meanings that define us and that we use to define the world" (p. 70).

The first construct related to cognitive development is a higher order learning cluster containing four items. For each of the items, students were asked to indicate the extent to which their coursework emphasized specific mental activities. Responses ranged from "Very little" to "Very much" on a four-point Likert scale. The four items in the NSSE (2011b) *Higher Order Learning* construct (first-year alpha = 0.82, senior year alpha = 0.83) are as follows:

- Analyzing the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components
- Synthesizing and organizing ideas, information, or experiences into new, more complex interpretations and relationships
- Making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions
- Applying theories or concepts to practical problems or in new situations

The second of the two deep learning constructs pertains to reflective learning. For each of the items in the construct, students were asked to indicate the frequency with which they engaged in specific activities. Responses ranged from "Never" to "Very often" on a four-point Likert scale. The three items in the NSSE (2011b) *Reflective Learning* construct (first-year alpha = 0.80, senior year alpha = 0.80) are as follows:

- Examined the strengths and weaknesses of your own views on a topic or issue
- Tried to better understand someone else's views by imagining how an issue looks from his or her perspective
- Learned something that changed the way you understand an issue or concept

One of the most important and desirable outcomes of a college education is the preparation of young men and women for lives as responsible citizens. This requires a sense of personal and social responsibility as well as a commitment to active and sustained integration within the broader community. Kuh's (2003a) personal social construct provides a useful model for the evaluation of responsible citizenship among band and non-band students. As Kuh (2003a) observed, the seven items that comprise this construct "represent outcomes that characterize interpersonally effective, ethically grounded, socially responsible, and civic minded individuals" (p. 10). For each of the items in this construct, students were asked to indicate the extent to which their experience at their respective institutions contributed to their knowledge, skills, and personal development in specific areas of engagement. Available response options ranged from

"Very little" to "Very much." The seven items the updated NSSE (2011b) *Personal Social* construct (first-year alpha = 0.87, senior year alpha = 0.88) are as follows:

- Developing a personal code of values and ethics
- Understanding yourself
- Understanding people of other racial and ethnic backgrounds
- Voting in local, state, or national elections
- Learning effectively on your own
- Contributing to the welfare of your community
- Developing a deepened sense of spirituality

The constructs outlined above served as models for the study. During the data analysis phase, a factor analysis was conducted to verify the individual constructs and evaluate the scale reliability values to determine whether each construct could be improved. Not all of the items on the NSSE were required to evaluate the targeted engagement characteristics of the band and non-band participants, but all items pertaining to specific constructs were administered to band participants to help preserve the validity and reliability of the assessment. It was understood that the extraction of individual items for a smaller survey administration could change the perception of the overall evaluation and perhaps inadvertently affect some of the responses. A request for ACT and/or SAT scores was added to the survey to provide additional pre-college information for the regression analyses.

Population & Sample

The target *populations* for this assessment were the marching band members and non-band students at four-year public and private colleges and universities in the United States with Division-I football programs and marching bands. As of fall 2015, there were 128 institutions of higher education with Division-I Football Bowl Subdivision (FBS) teams (National Collegiate Athletic Association, 2015). The marching band *sample* was composed of the students from the 20 selected marching bands who participated in the online survey administration for this study. The non-band *sample* was composed of a representative dataset of general undergraduate NSSE survey responses from the corresponding institutions provided by the NSSE Institute.

In order to make comparisons between these band and non-band students, it was determined that selected items and constructs from the National Survey of Student Engagement (NSSE) would be administered to marching band members at institutions that had already administered the full NSSE to their respective undergraduate populations. Administration of the NSSE occurs during the second semester of an academic year. This timing allows freshmen to adapt to their environments and establish patterns of engagement with others in the college or university community. Because marching bands are primarily associated with football programs and are therefore only typically in session together during the fall semester, the survey for this study was administered to participating band members at the conclusion of the fall semester.

The first step in obtaining the band sample was to identify the institutions with Division-I football programs and marching bands that participated in the NSSE in the spring of 2012. A national review of colleges and universities identified 37 eligible marching band programs from a broad geographical range of four-year colleges and universities. Invitations to participate in the study were sent to each of the respective marching band directors at the 37 institutions

identified through the review process. Of those 37 band programs, 20 directors agreed to participate and administered the survey to their students (see Table 5 in appendix).

Over the course of the fall semester, band members share in the intensive and constructive pre-season camp process, often entailing as many as 80 rehearsal hours during a one- to two-week period, as well as the regularly scheduled rehearsals throughout the season from September through mid-November. Administering the survey to these students at the end of first semester was intended to capture any effects of participation over the course of the fall season.

Comparisons of collected band member data were made against general undergraduate survey data from the previous spring semester at the corresponding institutions provided by NSSE. Although it might be preferable to compare data from within one academic year (fall 2012 marching band data vs. spring 2013 general undergraduate data), most institutions do not participate in the NSSE every year, and it is not possible to anticipate which institutions will participate in the spring of a subsequent year. Therefore, the selection of marching bands invited to participate in the study during the fall 2012 semester was made from the list of institutions that participated in the NSSE during the spring semester of the previous academic year.

The general undergraduate students at the corresponding institutions who completed the NSSE in the spring of 2012 constituted the non-band population. Although some marching band members would have undoubtedly been included among the general undergraduate survey data provided by NSSE, the percentage of students enrolled in the marching band at any institution is typically very small (less than 2% of the entire undergraduate population). Any effect of including the band members in the non-band sample would only flatten or diminish the observed differences between band and non-band students. Therefore, for the purposes of this evaluation,

it was determined that the NSSE dataset from the general undergraduate populations at the participating institutions would serve as the non-band sample.

A total of 2,173 band members from the 20 participating college bands initiated the online survey for this study. Of that number, 1882 survey responses contained sufficient data for the analysis (see Table 5 in the appendix for distribution). The marching band member sample was compared with a dataset provided by the NSSE Institute for the same 20 institutions. This data set was composed of 6,095 responses representing a proportional distribution of all first-year and senior students. The NSSE dataset served as the non-band member sample for the analysis.

Data Collection

Selected items from the National Survey of Student Engagement (NSSE) were reproduced in an electronic survey through the online data collection software program, *Qualtrics*, for distribution to all potential survey respondents. All items selected from the NSSE were used with permission from The College Student Report, National Survey of Student Engagement, Copyright 2001-12, The Trustees of Indiana University.

Prior to the survey administration, the proposed methodology was submitted for Institutional Review Board (IRB) approval at Boston College and at each participating institution. In most cases, the participating institutions accepted the Boston College IRB determination as sufficient evidence of an appropriate methodology. In other cases, where a separate IRB approval was required, the appropriate documentation was completed. Each of the participating institutions was provided with the Boston College IRB approval along with the researcher's Collaborative Institutional Training Initiative (CITI) certification and a letter of consent from the respective marching band director.

Directors were informed that participation would require 15 minutes of a designated rehearsal for the members to complete the survey on their own laptops or tablets. The requested allocation of rehearsal time was intended to convey to the marching band members that the data to be collected and interpreted from the survey were worthy of the band members' time. The survey link was forwarded to the participating marching band directors at the beginning of November, and they were each asked to administer the survey at a designated rehearsal prior to the end of the marching band season.

In order for the response rates to be sufficient, each director was asked to explain the relevance of the survey, remind students to bring their laptops or tablets prior to the designated rehearsal, and allocate sufficient time for the students to complete the survey. It was anticipated that some students might not own their own laptops or tablets, but the prevalence of these devices on college campuses suggested that a majority of students would have access to such a device and be able to complete the survey during the designated rehearsal. In cases where a band director was not able to allocate time for the survey administration during rehearsal, or the conditions for administering the survey during a rehearsal were not favorable, band members were asked to complete the surveys on their own time through the survey link provided by their director. It was anticipated that the response rates and/or quality of responses could be lower for surveys administered outside of the designated rehearsal under the supervision of a band director.

Consideration was given to the possibility that some of the limitations in access to portable electronic computing devices might reflect the socioeconomic characteristics of the individual and/or institution. Although discussions with directors suggested that most students would have access to some type of computer on campus, the possibility of response bias against individuals

from lower socioeconomic conditions was discussed, and band directors were encouraged to make every attempt to facilitate the completion of the surveys by all band members.

Before completing the survey, all band members were required to sign the electronic consent on the first page of the survey (see Marching Band Survey in appendix). Responses from each survey participant were automatically captured and sorted by institution (see Table 5 in appendix). All survey items selected from the NSSE were presented in the same format as the original 2012 College Student Report (NSSE, 2012). Several of the participating directors who initially agreed to administer the survey during a rehearsal encountered logistical or scheduling challenges and were required to provide the link to their members through an email link. In these cases, the directors were asked to encourage their members to allocate sufficient time to complete the survey. All survey responses were completed between November 1, 2012 and January 31, 2013.

Data Review & Missing Data

Prior to the data analysis, a cursory review of the survey response data from all participating marching band members was conducted to confirm that the responses were reasonably distributed among the participating schools. In order for the analysis to be reliable, it was understood that the sample should be broad enough to adequately capture the defining characteristics of the marching band programs that participated in the study.

Determinations about missing data required careful consideration. In some cases, a missing response might be attributed to nothing more than an inadvertent omission or a conscious decision to skip an item without any particular bias. In other cases, a missing response might mask a clearly defined preference (Little & Rubin, 2002). Some students may have been

reluctant to share personal information even though no personal identifiers were collected. In order to accommodate incomplete surveys, conditions were established so that a minimum number of items would be required for each targeted construct in the analysis (e.g. 3 of 4 items for the higher order learning scale, 2 of 3 items for the reflective learning scale, and 5 of 7 items for the personal social responsibility scale).

Ultimately, because student participants were informed that they were not required to respond to all items in accordance with IRB protocol, every effort was made to include data from incomplete survey responses. Only those survey responses that contained no data (a total of 291) were removed and recoded as unresponsive. As a result, of the 2,173 initial band survey responses received, a total of 1,882 were utilized for the analysis. The participation rate for each band was calculated based upon the number of viable surveys as a percentage of the total number of members in each respective band. As anticipated, in most cases, the response rates were higher for bands that administered the survey during designated rehearsals than for those that asked their members to complete the surveys on their own time. The overall response rate for all participating marching bands was 38% (see Table 5 in appendix for additional information).

After the survey responses were received from each participating marching band, a weighted dataset of first-year and senior students for each of the respective universities was requested from the NSSE Institute. In order to preserve institutional confidentiality, the NSSE Institute required the participation of at least five colleges or universities and removed all personal identifiers and institutional affiliations in the dataset. Therefore, direct comparisons between each band and its respective undergraduate population were not possible. The aggregate dataset of non-band responses provided by NSSE was composed of a 20% sample of the corresponding institutional responses. Although some band students were likely included in the broader sample, the

percentage of band students in the general undergraduate population was small enough (typically less than 2%) to not pose a problem for the analysis. Comparisons were therefore made between the total band member sample and the aggregate undergraduate student dataset (classified as non-band students for the purposes of this study) within the participating institutions. The inability to make direct comparisons between band and non-band student survey responses within each respective participating institution was accepted as a limitation of the study.

Prior to the statistical analysis, the band member survey data were imported from the online survey application, *Qualtrics*, to the IBM statistical software application, SPSS. The resultant marching band data file was then compared with the general undergraduate student data file from the combined corresponding institutions provided by the NSSE Institute to ensure consistent formatting. Likert scale items were recoded as necessary to ensure consistency between the band member sample data obtained through the survey and the corresponding institutional non-band student sample data provided by the NSSE Institute. To facilitate statistical computations, Likert scale items were assigned numerical values in SPSS along a scale from 1-100. For example, on a four-point Likert scale, values were assigned as follows: 1=0, 2=33.3, 3=66.7, 4=100.

The majority of the responses to NSSE items were collected as ordinal variables. These variables each had a discrete number of possible responses, and they were structured along an ordered or directional scale. For example, responses to the question about the frequency with which a student "discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)" included: "Very often," "Often," "Sometimes," and "Never" (NSSE, 2012c). Responses to other items including race, gender, and enrollment status produced discrete or unordered categorical variables. Any responses that were not within obtainable limits (e.g. SAT score of 50) were removed. Because standardized test data (SAT &

ACT scores) were not available for all students, SAT scores were converted to ACT scores according to the *ACT-SAT Concordance* worksheet (ACT, 2014) to provide standardized test data for all students who provided either SAT or ACT scores.

Data Analysis

In order to thoroughly evaluate the potential differences in the types and degrees of student engagement between marching band members and non-band members in selected colleges and universities, several independent evaluations were required. Among these evaluations were a preliminary review of the descriptive statistics, a factor analysis to confirm or modify target constructs for the analysis, comparative *t*-tests between band and non-band students on the resultant scales, and regression analyses to determine whether differences between band and non-band students remained after accounting for pre-college and co-existing characteristics.

A review of the descriptive statistics provided preliminary data on measures of central tendency and variability to highlight distinguishing characteristics between the marching band and non-band member samples. This profile also contained information about pre-college characteristics including gender, race, international student status, ACT (and converted SAT), and parent education, as well as co-existing characteristics including year in school, academic major, fraternity/sorority membership, student athlete status, foreign language experience, study abroad status, internship experience, volunteer experience, learning community participation, research experience, and marching band membership. These variables, included in the initial survey provided by NSSE, were useful in obtaining a more complete understanding of the characteristics of the band and non-band samples as well as in accounting for important pre-college and college characteristics in the subsequent regression analyses.

Although preliminary comparisons between marching band students and non-band students based upon the descriptive statistics provided useful general information about the respective samples, this analytical technique is not considered psychometrically strong, and conclusions about the samples were therefore limited. Assessments based upon factors or summed scales of clustered items are preferable for statistical analyses. From the full dataset, including both the band member sample and the general undergraduate sample provided by the NSSE Institute, a factor analysis was conducted to identify the clusters of items that held together statistically based upon similarities in response patterns of the participants.

The primary objective of the factor analysis was to confirm the four target constructs or scales for this study. Descriptive statistics for the factor analysis included the initial solution, determinant, and KMO. The extraction was unrotated, correlation matrix, based on Eigenvalue of 1, and a convergence of 50. Cases were excluded pairwise. Cronbach's alpha values were obtained as measures of internal consistency and scale reliability for each construct. In general, higher Cronbach's alpha coefficients correspond to greater scale reliability, and Cronbach's alpha scores greater than 0.7 were considered sufficient for the analysis (Nunnaly, 1978).

According to the initial factor analysis of all engagement items, three items were identified in the diversity scale (please see Table 45 in the appendix). These items included: the frequency with which the respondent had conversations with students of a different race or ethnicity; the frequency with which the respondent had conversations with a student of a different religion, political opinions, or personal beliefs; and the frequency with which the respondent made a class presentation. This last item differed from the third item in the diversity construct originally identified by Kuh (2003a) and later modified by NSSE (2011b). Because the resultant third item from the factor analysis was not specifically related to engagement with diversity, the first two

items were isolated for a separate scale reliability assessment without a third item. Without the class presentation item, the diversity scale Cronbach's alpha improved from 0.67 to 0.85.

For each of the two items in the resultant *Engagement with Diversity* scale, students were asked to respond to the question, "In your experience at your institution during the current school year, about how often have you done each of the following?" Responses included: "Never," "Sometimes," "Often," and "Very Often." Individual items, corresponding factor loadings, and the Cronbach's alpha reliability estimate for the *Engagement with Diversity* scale are summarized in Table 1.

Table 1
Engagement with diversity scale

Survey Item	**Factor Loading**
1. Had serious conversations with students of a different race or ethnicity than your own	0.737
2. Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values	0.737
Cronbach's Alpha	**0.848**

The next two target constructs in the analysis were *Higher Order Learning* and *Reflective Learning* under the category of "deep-level processing" (Nelson Laird, Shoup, & Kuh, 2005). The initial factor analysis of all items conducted in this study produced the same related items and scales previously identified by Nelson Laird, Shoup, and Kuh (2005). Items in the *Higher Order Learning* scale addressed the extent to which students' coursework emphasized specific mental activities. Participants were asked to respond to the question: "During the current school year, how much has your coursework emphasized the following mental activities?" Responses

included: “Very little,” “Some,” “Quite a bit,” and “Very much.” Individual items, corresponding factor loadings, and the Cronbach’s alpha reliability estimate for the *Higher Order Learning* scale are summarized in Table 2.

Table 2
Higher order learning scale

Survey Item	**Factor Loading**
1. Synthesizing and organizing ideas, information, or experiences into new, more complex interpretations and relationships	0.691
2. Analyzing the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components	0.634
3. Making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions	0.624
4. Applying theories or concepts to practical problems or in new situations	0.590
Cronbach’s Alpha	**0.814**

Items in the *Reflective Learning* scale addressed the frequency with which students engaged in specific activities. Participants were asked to respond to the question: “During the current school year, about how often have you done each of the following?” Responses included: “Never,” “Sometimes,” “Often,” and “Very Often.” Individual items, corresponding factor loadings, and the Cronbach’s alpha reliability estimate for the *Reflective Learning* scale are summarized in Table 3.

Table 3
Reflective learning scale

Survey Item	Factor Loading
1. Tried to better understand someone else's views by imagining how an issue looks from his or her perspective	0.689
2. Examined the strengths and weaknesses of your own views on a topic or issue	0.635
3. Learned something that changed the way you understand an issue or topic	0.597
Cronbach's Alpha	**0.796**

In the evaluation of the final scale through factor analysis, all seven items from the original (Kuh, 2003a) *Personal Social* scale were ultimately confirmed. Although "developing a deeper sense of spirituality" was initially identified in the factor analysis for this study (please see Table 45 in the appendix), matching Kuh's (2011b) updated version of the *Personal Social* scale, this particular item was not identified the original construct proposed by Kuh (2003a), nor was it a target item for the purpose of this study. Therefore, the item was omitted in favor of another item resulting from the factor analysis in the Kuh (2003a) construct, "Solving complex world problems." The resultant Cronbach's alpha scale reliability estimate was 0.878.

For each of the items in the resultant *Personal Social Responsibility* scale, respondents were asked: "To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in the following areas?" Responses included: "Very little," "Some," "Quite a bit," and "Very much." Individual items, corresponding factor loadings, and the reliability estimate for the *Personal Social Responsibility* scale are summarized in Table 4.

Table 4
Personal social responsibility scale

Survey Item	Factor Loading
1. Developing a personal code of values and ethics	0.743
2. Understanding yourself	0.713
3. Understanding people of other racial and ethnic backgrounds	0.698
4. Contributing to the welfare of your community	0.684
5. Solving complex real-world problems	0.679
6. Learning effectively on your own	0.626
7. Voting in local, state (provincial), or national (federal), elections	0.511
Cronbach's Alpha	**0.878**

After the four scales were confirmed through factor analysis and the reliability estimates obtained, the next step in the analysis was to conduct independent samples *t*-tests between the band member and non-band student samples to determine whether differences could be identified and, if so, whether the differences were statistically significant. In addition to the analyses between all band and non-band students, *t*-tests were conducted between band and non-band students at both the first-year and senior level, as well as between first-year and senior band students and between first-year and senior non-band students. Because this study was not longitudinal, actual student growth could not be assessed over time, but the latter evaluations were conducted as a proxy for growth between first-year and senior year.

The final step in the analysis was to conduct blocked stepwise regression analyses for each of the four target outcome variables to determine whether between-group differences persisted after

controlling for a range of pre-college and co-existing variables known to contribute to student engagement. Previous research has identified positive correlations between parent education and student engagement as well as between student academic preparation and student engagement (Hu & Kuh, 2002). However, considering that statistically significant differences in large samples are frequently small, it would be notable that the effect of any single variable would yield any significance after taking individual-level variables into account.

For the regression analyses in this study, based upon available items from the NSSE, pre-college characteristics included gender, race, international student status, ACT (and converted SAT), and parent education. Co-existing characteristics included year in school, fraternity or sorority membership, student athlete status, foreign language experience, study abroad status, internship experience, volunteer experience, learning community participation, and research experience as well as academic major and marching band membership.

Summary

In the initial stage of this investigation, collected survey responses from band students were compared against a dataset of general undergraduate (non-band) students from the corresponding universities provided by the NSSE Institute. Pre-college and co-existing student characteristics were evaluated to obtain a more comprehensive understanding of the samples, and initial comparisons on individual survey items were made to identify potentially significant differences in the types and degrees of engagement indicated by band students and their non-band peers.

In the second phase of the investigation, a factor analysis was conducted to confirm the four target constructs for the evaluation: *engagement with diversity*, *higher order learning*, *reflective learning*, and *personal social responsibility*. The *engagement with diversity* scale was modified

slightly from the original construct identified by Kuh (2003a). The *higher order learning* and *reflective learning* scales confirmed the same items previously identified by NSSE (2009). The *personal social responsibility* scale was modified from the initial factor analysis to include the same items previously identified by Kuh (2003a).

In the third phase of the evaluation, each of the primary research questions was addressed. To answer the first research question, independent samples *t*-tests were conducted between band and non-band students on each of the four target constructs to identify potential differences between the two groups. To answer the second research question, *t*-tests were conducted between first-year band and non-band students as well as between senior band and non-band students. And lastly, to answer the third research question, *t*-tests were conducted between first-year and senior band students as well as between first-year and senior non-band students.

The fourth and final phase of the investigation was composed of a series of blocked stepwise regression analyses to determine whether differences between band and non-band students on each of the four target constructs persisted after accounting for pre-college and co-existing characteristics. The regression analyses also provided important information about the predictive power of individual variables on each target construct.

CHAPTER FIVE: FINDINGS

Overview

The purpose of this study was to compare marching band and non-band student college student experiences through their responses to selected items and constructs from the National Survey of Student Engagement. It was theorized that the conditions in the college marching band might be associated with distinctive patterns of engagement in the college experience. These conditions have been associated with an array of developmental benefits including greater appreciation of diversity and capacity for responsible citizenship (Pascarella & Terenzini, 2005).

In order to conduct the evaluation, 1,882 marching band member survey responses from 20 participating universities were compared with 6,095 general undergraduate (non-band) aggregate survey responses from the same institutions. The total number of band and non-band member surveys considered for the analysis was 7,977. The primary objective of the study was to determine the extent to which band and non-band students differed on key constructs identified as central to the aims and objectives of a higher education including engagement with diversity, higher order learning, reflective learning, and personal social responsibility.

A review of the data identified several pre-existing distinctions between band and non-band students including higher ACT/SAT scores as well as higher levels of parent education for band students than their non-band peers. Within the university setting, band students indicated greater interpersonal and extracurricular engagement than their non-band peers in a range of settings, although the non-band students appeared to indicate greater engagement on a number of items related to traditional classroom education.

From an interpersonal and social perspective, band students indicated they were more satisfied than their non-band peers with the quality of their relationships with faculty members

and other students. Band students were also more satisfied with the quality of their overall educational experiences and they would be more likely than their non-band peers to attend the same institution again if starting anew.

On the primary target constructs for the analysis, band students indicated greater engagement with diversity and reflective learning than their non-band peers. Even after controlling for pre-college and college characteristics, participation in the college marching band remained a positive predictor of a student's engagement with diversity and reflective learning. Similarly, band students indicated greater engagement on a range of items related to personal social responsibility than their non-band peers. After controlling for pre-college and college characteristics, band participation remained the single strongest predictor of a student's personal social responsibility. A smaller difference was observed between all band and non-band students was observed on the higher order learning construct.

The increased levels of engagement with diversity, reflective learning, and personal social responsibility indicated by all band students were also evident among first-year and senior band students when compared with their non-band peers. Although there was no significant difference in the amount of change observed between first-year and senior band students, first-year band students indicated higher levels of engagement than their *senior* non-band counterparts on each of these constructs. This finding suggests that band students may experience greater engagement with diversity, reflective learning, and personal social responsibility than their non-band peers throughout the college experience.

This chapter presents an overview of the sample characteristics and target constructs behind these conclusions. A detailed evaluation of each of the three research questions is also provided.

Institutional Characteristics

All of the 20 university marching bands that participated in this study are located at four-year, bachelor degree granting, research institutions and Division-I college athletic programs. Summary information is provided in Table 5 in the appendix. Two of the institutions, Syracuse University and the University of Miami, are private; and the remaining 18 are public. Geographically, the universities represent 16 states including eight from the South, four from the West, three from the Midwest, and 1 from the Northeast. Undergraduate enrollment at the participating institutions ranged from 10,163 at the University of Wyoming to 32,543 at Indiana University.

With 150 members each, the two smallest two marching bands in the study were from Boise State University and Northern Illinois University. The largest marching band, with 450 members, was from the University of Georgia. The lowest survey response rate for band students was obtained from Mississippi State University (14%), and the highest response rate was obtained from Clemson University (96%). The possibility that bands with poor response rates might not accurately reflect the full ensembles as well as the overrepresentation of some bands with higher response rates were accepted as limitation of the study.

The overall mean band survey response rate (38%) compares favorably with the mean NSSE survey response rate (32%) according to NSSE data (2012e). Higher band member response rates were obtained from participating directors who administered the survey during designated rehearsal time (e.g. Clemson University, University of Wyoming, University of Oregon). Band survey response rates were lower at institutions where on-site survey administration was not possible and members were provided with a survey link for completion outside of rehearsal (e.g. Mississippi State University, University of Louisville, University of Louisiana at Lafayette).

Student Characteristics

Marching Band Experience

Marching band respondents were asked to indicate the number of years they have participated in a marching band including previous schooling and the current academic year. Summary data are provided in Table 6 in the appendix. Options were provided in single year increments from one to "10 or more" years (M=5.68, SD=2.02). A quarter of all band respondents, 473 out of 1,874, indicated that the current year was their fifth participating in a marching band. A large majority of the band respondents (81%) indicated that they had accrued between four and eight years of experience in a marching band. Sources of previous marching band experience may include, but are not necessarily limited to, the current institution, community bands, high school bands, and grade/middle school bands. Only a small fraction of the band respondents (4%) indicated that this was their first year in a marching band.

Class Distribution

Because the College Student Questionnaire is generally administered to first-year and senior students, it was anticipated that the number of non-band (NSSE) respondents in each of these two classifications would be higher than that for sophomore and junior students. Within the dataset provided by the NSSE Institute, 1,870 of the non-band respondents were first-year students, and 2,726 were seniors. Fewer responses were obtained for the remaining non-band students including 261 sophomores, 265 juniors, and 69 unclassified students. These students were included in broad comparisons between band and non-band students, but they were not included in the analyses between first-year and senior students. By comparison, the band respondents were more evenly distributed, even after accounting for natural attrition within

marching bands over the course of the undergraduate experience, with 679 first-year students, 480 sophomores, 367 juniors, and 325 seniors.

For the first research question, data from all band and non-band (NSSE) students were utilized in assessing broad differences between band and non-band students. For the second and third research questions, only data from first-year and senior band and non-band students were utilized to evaluate potential differences between these groups as a proxy for growth. Class distribution data are provided in Table 7.

Table 7
Class distribution of survey respondents (n=7,065)

Class Distribution	**Band (*n*=1,874)**	**Non-Band (*n*=5,191)**
Freshman/1st Year	36.2%	36.0%
Sophomore/2nd Year	25.6%	5.0%
Junior/3rd Year	19.6%	5.1%
Senior/4th Year	17.4%	52.5%
Unclassified	1.2%	1.4%
Overall	**26.5%**	**73.5%**

Gender

Table 8 shows the gender composition of the band and non-band samples. The national norms for NSSE repeatedly show that women are more likely than men to respond to the survey; for the national survey findings, 64% of respondents are female (NSSE, 2012e). That finding is closely matched by the gender breakdown in the non-band sample from the 20 universities that participated in this study. University gender percentages obtained through institutional IPEDS

reports (NCES, 2014) show that the experiences of men are underrepresented in NSSE responses in comparison with their actual share of the undergraduate population at their institutions. However, NSSE weighs the mean, frequency, distribution, and benchmark scores to account for the gender disparity among respondents (NSSE, 2012e).

By contrast, the gender representation of band member respondents from the same 20 universities was less female-dominated, presumably because several band directors used rehearsal time to administer the survey and the gender distribution among bands does not mirror the general undergraduate distribution. Although gender distributions were not provided for the full membership of all participating marching bands, data obtained from nine bands through a supplemental request indicate that the overall gender ratio for the participating marching bands was slightly skewed toward male members (52%) over female members (48%). This distribution reflects an inverse relationship with the corresponding institutional distribution according to the IPEDS data (NCES, 2014). Summary data for the nine bands that provided supplemental gender profiles are provided in Table 9 in the appendix.

Table 8
Gender distribution of survey respondents (n=6,805) & IPEDS data (N=425,636)

Gender	**Band (*n*=1,607)**	**Non-Band (*n*=5,198)**	**IPEDs for 20 Institutions *N*=425,636**
Female	54.1%	61.5%	**51.4%**
Male	45.9%	38.5%	**48.6%**

Race & Ethnicity

Table 10 provides a summary of the racial profiles provided by the survey respondents along with the IPEDS data for the corresponding institutions. Although the percentage of students who identify as white in the NSSE sample was comparable to that of the IPEDS data, the percentage of students who identify as white in the band sample was 7% higher than each of these samples. Conversely, the proportion students who identify as Asian, Asian American, or Pacific Islander as well as those who identify as Black or African American was smaller among band students than among students in the NSSE and IPEDS categories. The representation of Hispanic students was slightly higher among band students than among the NSSE participants but lower than the IPEDS representation.

The approximately four to one ratio of white students to students of color among band respondents appears to reflect a lower representation of students of color in the participating college marching bands. In addition to the apparent under-representation of students of color in the participating marching bands, there were fewer international students represented in the band survey data (2%) than in the non-band data (6%). This finding may limit claims that can be made regarding engagement with racial and ethnic diversity but, despite possible correlations, it does not directly address findings related to religious, political, ideological, or socioeconomic diversity. The observed differences in racial characteristics between band and non-band students were identified and evaluated as a possible contributor to outcomes in the subsequent regression analyses.

Table 10
Survey, NSSE, & IPEDS race and ethnicity distribution for 20 participating institutions

Race/Ethnicity	Band (*n*=1,570)	Non-Band (*n*=4,926)	IPEDS for 20 Institutions (*N*=392,658)
American Indian or Native American	0.9%	0.5%	0.4%
Asian, Asian American, Pacific Islander	2.9%	9.1%	6.4%
Black or African American	4.5%	6.5%	8.9%
Hispanic	7.8%	6.3%	9.1%
White	80.1%	73.1%	72.6%
Two or more races	3.2%	3.3%	2.6%
Other	0.6%	1.2%	_

Parent Education

Survey participants were asked to indicate the highest level of education completed by their parents. Options were provided on a seven-point scale ranging from "Did not finish high school" to "Completed a doctoral degree (Ph.D., J.D., M.D., etc.)."

An independent samples *t*-test was conducted to compare the highest level of education achieved by the parents of band members and non-band members. According to the results of the *t*-test, the mothers of band students (M=4.42, SD=1.48) earned higher levels of education than the mothers of non-band students (M=4.12, SD=1.61); $t(6735)=6.61$, $p<.01$, where a Mean value of 4 corresponds to the completion of an associate's degree and a Mean value of 5 corresponds to the completion of a bachelor's degree. The fathers of band students (M=4.41, SD=1.66) also attained higher levels of education than the fathers of non-band students (M=4.17,

SD=1.77); *t*(6716)=4.78, *p*<.01. Resultant scale information and data are provided in Table 11 in the appendix.

Standardized Test Data

Survey participants were asked to provide SAT and/or ACT scores. Because neither test was taken by all of the participants, collected SAT scores were converted to equivalent ACT scores according to the *ACT-SAT Concordance* chart (ACT, 2014) to enable comparisons along a single scale from 1 to 36. An independent samples *t*-test was then conducted to identify differences in the resultant ACT scores between band and non-band participants. According to the results of the *t*-test, band members (*M*=27.72, *SD*=4.14) scored higher than non-band members (*M*=25.61, *SD*=4.29); *t*(5230)=15.43, *p*<.01, on this standardized assessment. Resultant data are provided in Table 12 in the appendix.

Major Course of Study

From the individual majors provided by survey participants, categories were created for the analysis. The Humanities category included Arts & Sciences as well as the Social Sciences. Science/Engineering included Biology, Chemistry, Engineering, Physics, and the Physical Sciences. Business included Finance, Management, Marketing, and Sales. Education included all levels and specializations in Education. The Professional/Other category included all other majors. In some cases, student engagement has been correlated with specific academic fields. Engineering majors, for example, were found to spend more time preparing for class than their non-engineering peers, but less time participating in educationally enriching experiences (Lichtenstein, McCormick, Sheppard, & Puma, 2010).

Science/Engineering was the most represented category of majors for both the band (25%) and non-band (26%) respondents. Humanities was the next most represented category for band students (24%) and the third-most represented category for non-band students (25%). Professional majors (e.g. architecture, health technology, library/archival science, occupational/physical therapy, etc.) were much more prevalent among non-band students (25%) than among band students (14%). Similarly, there were approximately twice as many business majors among non-band students (15%) than among band students (7%). Conversely, education majors were much more prevalent among band students (15%) than among non-band students (6%). Unsurprisingly, there was a much higher representation of Music and Music Education majors among the band students (15%) than among the non-band students (1%). Summary information on the distribution of majors is provided in Table 13 in the appendix.

Additional Student Characteristics

In addition to the differences in academic majors identified among survey participants, a range of pre-existing and co-existing student characteristics was evaluated for potential contributors in the regression analyses for the target scales/constructs. Among the pre-existing variables, it was discovered that a higher portion ($p<.01$) of non-band students (34%, $n=5,144$) than band students (28%, $n=1,602$) were the first in their families to attend college or earn a bachelors degree.

Survey participants were asked to indicate whether they had completed, planned to complete, or did not plan to complete a range of educational offerings. Students who indicated that they had completed or planned to complete these offerings were coded as one (1), and students who

indicated that they either did not plan to complete or were undecided about whether they would participate in these offerings were coded as zero (0).

A higher percentage ($p<.01$) of band students (63%, n=1,735) than non-band students (57%, n=5,401) indicated experience or an intent to participate in foreign language offerings, although no significant difference was observed between band (41%, n=1,734) and non-band (38%, n=5,382) students with regard to study abroad. A larger ($p<.05$) percentage of band students (85%, n=1,733) than non-band students (83%, n=5,408) indicated they intended to complete or had already completed an internship. Similarly, more ($p<.01$) band students (46%, n=1,732) than non-band students (42%, n=5,393) indicated an interest in research with faculty. Lastly, a higher percentage ($p<.01$) of band students (43%, n=1,734) than non-band students (37%, n=5,362) indicated they had participated in or intended to participate in a learning community, but there was no difference observed between band (83%, n=1,734) and non-band (83%, n=5,376) students with regard to volunteer work.

On additional items related to co-curricular engagement, fewer ($p<.05$) band students (15%, n=1,601) than non-band students (17%, n=5,170) indicated they were members of a fraternity or sorority, and a larger percentage ($p<.01$) of band students (7%, n=1,602) than non-band students (3%, n=5,166) indicated they were student athletes sponsored by their institution's athletic department. Summary student characteristics data are provided in Table 14 in the appendix.

Patterns of Engagement

Interpersonal Engagement and Reflection

An independent samples *t*-test was conducted to compare band member and non-band member responses to each of the individual items on the survey. Several statistically significant differences between the two groups were identified.

Band students were more likely than non-band students to work with faculty members on activities other than coursework including committees, orientation, and student life activities, $t(7438)=6.04$, $p<.01$. Band students were also more likely than their non-band peers to participate in a community-based project (e.g. service learning) as part of a course, $t(7527)=6.52$, $p<.01$, and more likely to teach or tutor other students, $t(2995)=4.43$, $p<.01$.

On items related to engagement with diversity, band members were more likely than their non-band peers to have serious conversations with students of a different race or ethnicity, $t(7466)=7.48$, $p<.01$, as well as students who are very different in terms of their religious beliefs, political opinions, or personal values, $t(7472)=10.95$, $p<.01$. Band members were also more likely than their non-band peers to examine the strengths and weaknesses of their own views on a topic or issue, $t(7231)=8.13$, $p<.01$; try to better understand someone else's views by imagining how an issue looks from his or her perspective, $t(3038)=5.17$, $p<.01$; and learn something that changed the way they understand an issue or concept, $t(7267)=4.90$, $p<.01$.

Corresponding mean and standard deviation values for items related to the frequency with which students indicated particular forms of interpersonal engagement and reflection are provided in Table 15.

Table 15
Interpersonal engagement and reflection

Item	Band (*n*)	Band Mean	Band *SD*	Non-Band (*n*)	Non-Band Mean	Non-Band *SD*	Sig. (2-tailed)
Worked with faculty members on activities other than coursework	1857	1.94	0.95	5583	1.78	0.93	**
Participated in a community-based project as part of a course	1850	1.81	0.97	5679	1.65	0.89	**
Tutored or taught other students	1857	1.97	0.99	5709	1.85	0.93	**
Had serious conversations with students of a different race or ethnicity	1857	2.87	0.99	5611	2.67	1.01	**
Had serious conversations with students who are very different in terms of their religious beliefs, political opinions, or personal values	1856	3.00	0.93	5618	2.71	0.99	**
Examined the strengths and weaknesses of their own views on a topic or issue	1790	2.84	0.88	5443	2.64	0.90	**
Tried to better understand someone else's views by imagining how an issue looks from his or her perspective	1795	2.94	0.87	5455	2.82	0.86	**
Learned something that changed the way they understand an issue or concept	1792	2.99	0.83	5477	2.88	0.83	**

Note. Rating scale: 1=*Never*; 2=*Sometimes*; 3=*Often*; 4=*Very often*; ** $p<.01$

Curricular Engagement

In the curricular realm, band students were less likely than their non-band peers to ask questions in class or contribute to class discussions, $t(3104)=-2.94$, $p<.01$; work with classmates outside of class to prepare class assignments, $t(7927)=-6.16$, $p<.01$; put together ideas or concepts from different courses when completing assignments or during class discussions, $t(7564)=-8.70$, $p<.01$; or include diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments, $t(7882)=-6.11$, $p<.01$.

Band students were also less likely than their non-band peers to work on a paper or project that required integrating ideas or information from various sources, $t(7902)=15.37$; $p<.01$, prepare two or more drafts of a paper or assignment before turning it in, $t(2981)=13.14$; $p<.01$, discuss ideas from their readings or classes with others outside of class (students, family members, co-workers, etc.), $t(7447)=-8.16$, $p<.01$; work harder than they thought they could to meet an instructor's standards or expectations, $t(7470)=-3.54$, $p<.01$; and discuss grades or assignments with an instructor, $t(7562)=-4.55$, $p<.01$. Corresponding mean and standard deviation values for the items related to curricular engagement are provided in Table 16 in the appendix.

Self-Reported Grades

Survey participants were asked to provide self-reported grades received to date at their respective universities. Because the survey was administered to non-band members during the spring semester and to most non-band members during the fall semester, it is likely that many first-year band members had not yet received formal semester grade reports at the time of the

survey administration. It is assumed that the grades reported by first-year band members reflected evaluations of individual course assignments rather than final grade reports.

An independent samples *t*-test was conducted to compare band member and non-band member self-reported class grades. The mean self-reported grade for both groups was 6.20 on a scale from 1 ("C- or lower") to 8 ("A"). This number corresponded to a "B+" or 3.3 on the traditional 4.0 scale. No difference was observed between the scores for band students (M=6.20, SD=1.57) and non-band students (M=6.20, SD=1.63); $t(6769)=0.08$, p=0.94. The median self-reported grade for both groups also corresponded to a "B+" or 3.3 on the 4.0 scale.

Extracurricular Engagement

Survey respondents were asked to indicate the number of hours they allocated in a typical week for participation in a range of activities. Compared with their non-band peers, band students reported spending more hours per week participating in co-curricular activities (organizations, campus publications, student government, fraternity or sorority, intercollegiate or intramural sports, etc.), $t(7050)=24.95$, $p<.01$, as well as relaxing and socializing (watching TV, partying, etc.), $t(7017)=2.40$, $p<.05$.

Band members reported spending less time than their non-band peers providing care for dependents living with them (parents, children, spouse, etc.), $t(7021)=-8.82$, $p<.01$; working for pay on campus, $t(7038)=-2.46$, $p<.05$; working for pay off campus, $t(7031)=12.40$, $p<.01$; and preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities), $t(2870)=-5.72$, $p<.01$. Summary mean and standard deviation values for items related to extracurricular engagement are provided in Table 17 in the appendix.

Perceived Institutional Emphasis and Contributions

Compared to their non-band peers, students in the band perceived a greater institutional emphasis on attending campus events and activities (special speakers, cultural performances, athletic events, etc.), $t(6965)=12.64$, $p<.01$ as well as encouraging contact among students from different economic, social, and racial or ethnic backgrounds, $t(6969)=9.85$, $p<.01$.

Band students, to a greater degree than non-band students, also indicated that their experiences at their respective institutions contributed to their knowledge, skills, and personal development in understanding people of other racial and ethnic backgrounds, $t(6721)=6.54$, $p<.01$; understanding themselves, $t(6706)=7.20$, $p<.01$; voting in local, state (provincial), or national (federal) elections, $t(6726)=22.26$, $p<.01$; contributing to the welfare of their community, $t(6713)=8.82$, $p<.01$; developing a personal code of values and ethics, $t(6720)=8.75$, $p<.01$; learning effectively on their own, $t(2841)=5.80$, $p<.01$; and solving complex real-world problems, $t(6723)=5.19$, $p<.01$. Corresponding men and standard deviation values for items related to perceived institutional emphasis and contributions are provided in Table 18 in the appendix.

Student Satisfaction

A factor analysis of all survey items identified a student satisfaction cluster with a scale reliability Cronbach's alpha of 0.742. A similar scale including the four items identified for this construct in addition to two items assessing relationships with administrative personnel and the quality of academic advising was previously identified by the NSSE Institute (NSSE, 2011b). Because the latter two items were not considered relevant for this study, they were not included

in the survey administration. The resulting four items in the student satisfaction scale identified through factor analysis, along with the corresponding factor loadings, are provided in Table 19.

Table 19
Student satisfaction scale

Survey Item	**Factor Loading**
1. Mark the box that best represents the quality of your relationships with other students	0.476
2. Mark the box that best represents the quality of your relationships with faculty members	0.494
3. How would you evaluate your entire educational experience at this institution?	0.624
4. If you could start over again, would you go to the same institution you are now attending?	0.547
Cronbach's Alpha	**0.742**

On each of the four items related to student satisfaction, band members indicated significantly higher degrees of satisfaction than their non-band peers. Band students had a more favorable view of their relationships with other students, $t(7118)=7.42$, $p<.01$; a more favorable view of their relationships with faculty, $t(7093)=3.86$, $p<.01$; and a more favorable view of their entire educational experience, $t(6787)=13.10$, $p<.01$. In addition, if starting over, band students indicated they would be more likely to attend the same institution again, $t(6798)=10.51$, $p<.01$. Summary mean and standard deviation data for the four items in the student satisfaction scale are provided in Table 20.

Table 20
Student satisfaction items

Item	Band (*n*)	Band Mean	Band *SD*	Non-Band (*n*)	Non-Band Mean	Non-Band *SD*	Sig. (2-tailed)
Relationships with other students	1737	5.92	1.08	5383	5.66	1.31	**
Relationships with faculty	1706	5.42	1.21	5389	5.29	1.31	**
Entire educational experience	1611	3.54	0.60	5178	3.29	0.70	**
Attend same institution	1607	3.58	0.63	5193	3.35	0.78	**

Note. Responses to items 1 and 2 were provided on a 7-point Likert scale where 1 indicated "Unfriendly, Unsupportive, Sense of alienation" and 7 indicated "Friendly, Supportive, Sense of Belonging." Responses to item 3 were provided on a 4-point Likert scale where 1 indicated "poor" and 4 indicated "excellent." Responses to item 4 were provided on a 4-point Likert scale where 1 indicated "Definitely no" and 4 indicated "Definitely yes." ** $p<.01$

Independent samples *t*-test comparisons for the evaluation of band and non-band students on the resultant student satisfaction scale suggested that band students (M=0.196, SD=0.643) were more satisfied than their non-band peers (M=-0.058, SD = 0.772) with their overall higher education experience; $t(6798)=11.99$, $p<.01$.

Research Questions

The primary objective of this study was to evaluate potential differences between college marching band students and non-band students in four domains: *engagement with diversity*, *higher order learning*, *reflective learning*, and *personal social responsibility*. These constructs were first identified by Kuh (2003a) and NSSE (2009) and then confirmed and modified through factor analysis for this report. The resulting scales served as the assessment measures for the outcome variables in this study.

As outlined in Chapter 4, in order to accommodate incomplete surveys, conditions were established so that a minimum number of items would be required for each target scale in the analysis. This allowed for a greater number of student responses to be considered even if the surveys were not complete, although the overall *n* value was lower than the total number of survey participants. In order for a student's responses on each construct to be included in the evaluation, both items in the *engagement with diversity* scale, three of four items in the *higher order learning* scale, two of three items in the *reflective learning* scale, and five of seven items in the *personal social responsibility* scale were required.

The three research questions and data for each of the questions are presented below.

Question 1

To what extent do marching band participants differ from non-marching band participants on selected measures of student engagement?

In order to answer the first research question, independent samples *t*-tests were conducted to evaluate potential differences in the mean scores for all marching band (collected data) and non-band (data provided by NSSE) students on each of the four target scales: *engagement with diversity*, *higher order learning*, *reflective learning*, and *personal social responsibility*. Summary findings are provided in Table 21. Following the *t*-tests, regression analyses were conducted on each of the target variables to account for pre-college and co-existing student characteristics. Regression data are provided in Tables 22-25 in the appendix.

Comparisons of *t*-test Data for All Band and Non-Band Students

In the first phase of the analysis, *t*-tests were conducted between all band and non-band students on each of the four target constructs. The two items in the diversity scale addressed the frequency with which the respondents had serious conversations with students of a different race or ethnicity as well as the frequency with which the respondents had serious conversations with students who are very different in terms of their religions beliefs, political opinions, or personal values. The analysis revealed higher *engagement with diversity* scores for band students (M=2.93, SD=0.89) than non-band students (M=2.69, SD = 0.93); $t(7487)=9.90$, $p<.01$. These results suggest that band members are more engaged with diverse peers than non-band members even though the profile of the bands appears to be less racially diverse than that of the respective institutions. It is unclear whether the increased engagement with diversity might be a result of forced affiliation, pre-existing traits, or some other characteristic(s) related to participation in the marching band.

Items in the *higher order learning* scale asked respondents to indicate the extent to which their coursework emphasized a range of mental activities including analyzing the basic elements of an idea, experience or theory, such as examining a particular case or situation in depth and considering its components; synthesizing and organizing ideas, information, or experiences into new, more complex interpretations and relationships; making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions; and applying theories or concepts to practical problems or in new situations. A smaller difference was observed in the *higher order learning* scale scores for all band students (M=3.16, SD=0.68) and non-band students (M=3.13, SD=0.66); $t(7395)=2.00$, $p<.05$.

Items in the *reflective learning* scale asked respondents to indicate the frequency with which they examined the strengths and weaknesses of their own views on a topic or issue; tried to better understand someone else's views by imagining how an issue looks from his or her perspective; and learned something that changed the way they understand an issue or topic. The observed difference in the reflective learning scale scores for all band students (M=2.92, SD=0.73) and non-band students (M=2.78, SD = 0.73); $t(7279)=7.25$, $p<.01$ suggests that band members are more reflective in their learning than their non-band peers.

Items in the *personal social responsibility* scale asked respondents to indicate the extent to which their experience at their current college or university contributed to their knowledge, skills, and personal development in an array of domains including: understanding people of other racial and ethnic backgrounds; developing a personal code of values and ethics; learning effectively on their own; understanding themselves; voting in local, state (provincial), or national (federal) elections; contributing to the welfare of their community; and solving complex real-world problems. A significant difference in the personal social responsibility scores was observed between all band students (M=2.92, SD=0.69) and non-band students (M=2.66, SD = 0.73); $t(6747)=12.44$, $p<.01$. These results suggest that marching band students are more likely than their non-band peers to indicate characteristics consistent with personal social responsibility.

Effect sizes, also referred to as Cohen's d, were also calculated as a reflection of the strength of the relationship between variables for each of the t-tests. Effect sizes are valuable in providing a more nuanced measure of the strength of the relationship between variables than statistical significance. According to Cohen (1992), effect sizes can range from small (0.2), to medium (0.5), to large (0.8). For the independent samples t-tests for all band v. non-band

students on target constructs, effect sizes ranged from a negligible 0.05 for the Higher Order Learning scale to a more moderate effect size of 0.36 for the Personal Social scale. Mean scores, standard deviations, and effect sizes for band v. non-band students on each of the four target scales are provided in Table 21.

Table 21
Independent samples t-tests for all band v. non-band students on target scales

Scale	***n***	**Mean**	***SD***	**Sig. (2-tailed)**	**Cohen's *d***
Eng. w/ Diversity					
Band	1858	2.93	0.89	**	0.26
Non-Band	5631	2.69	0.93		
Higher Order Learning					
Band	1821	3.16	0.68	*	0.05
Non-Band	5576	3.13	0.66		
Reflective Learning					
Band	1796	2.92	0.73	**	0.19
Non-Band	5485	2.78	0.73		
Personal Social Resp.					
Band	1606	2.92	0.69	**	0.36
Non-Band	5143	2.66	0.73		

Note. Equal variances assumed. ** $p<.01$; * $p<.05$

Marching band membership alone could not be established as the primary reason for the observed differences in band and non-band scores on each of the target scales. An array of pre-existing and co-existing factors undoubtedly contributes to the various distinctions between band and non-band students. In order to account for these factors and determine their contribution to

variability in the outcome measures, a blocked stepwise regression analysis was conducted for each of the four scales: *engagement with diversity*, *higher order learning*, *reflective learning*, and *personal social responsibility*.

Twenty independent variables, organized into four temporal blocks, were included in the regression analyses. The first block of the regression contained five pre-college variables: gender, race, international student status, ACT (and converted SAT), and first generation status. The second block of the regression included seven co-existing (college) variables: the completion of (or intention to complete) a study abroad program, volunteer work, internship, participation in a learning community, research with faculty, athletic team membership, and fraternity/sorority membership. Academic major was considered in the third block of the regression. Majors were broadly categorized under music and music education, humanities, science and engineering, business, education, professional, and undecided. The fourth and final block of the regression was allocated for participation in the college marching band.

Engagement with Diversity (all students)

A total of 4,263 cases were included in the regression analysis of all students on the *engagement with diversity* scale following the listwise exclusion of missing data. Among the 20 variables identified and included in the regression analysis, 12 entered the regression model and 11 remained significant in the final step. These included: ACT/SAT, student of color, international student (negative relationship), research with faculty, learning community, volunteer work, internship, fraternity/sorority (negative relationship), humanities major, education major, and marching band membership. The model explained 8% of the variance in the outcome measure, *engagement with diversity*, $R^2 = .077$, $F(1, 4{,}250) = 29.354$, $p < .001$, where

R^2, or the coefficient of determination, reflects how well the data fit the regression line. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta "β" (standardized regression coefficient estimate), are provided in Table 22 in the appendix.

According to the results of the regression analysis, among the pre-college characteristics, ACT/SAT score (β=0.098, p<.01) and student of color designation (β=.076, p<.01) both made positive contributions to the engagement with diversity model. Conversely, international student status was a negative predictor of a student's engagement with diversity (β=-.045, p<.01). Gender and first generation status did not enter the regression.

Among the co-existing characteristics, the strongest predictor of students' engagement with diversity was their completion of, or intention to complete, research with faculty (β=0.113, p<.01), followed by participation in a learning community (β=0.073, p<.01), volunteer work (β=0.075, p<.01), and internship (β=0.052, p<.01). Membership in a fraternity or sorority entered the model as a negative predictor of engagement with diversity (β=-0.045, p<.01) and remained a negative predictor of engagement with diversity in the final step of the analysis (β=-0.037, p<.05). This finding appears to be consistent with previous research (Astin, 1993; Pascarella & Terenzini, 2005). Study abroad and sponsored athlete status did not enter the regression with any predictive power for students' engagement with diversity.

Three academic majors entered the regression in the third block of the analysis. Humanities major entered as a positive predictor of engagement with diversity (β=0.091, p<.01) and remained a positive predictor in the final step of the analysis (β=0.096, p<.01). Education major entered as a positive predictor of engagement with diversity (β=0.071, p<.01) and remained a predictor with slightly less strength at the end of the analysis (β=0.045, p<.05). Music and

music education entered the regression as a positive predictor of engagement with diversity (β=0.040, $p<.05$), but was no longer significant at the end of the analysis. Science and engineering, business, professional, and undecided majors did not enter the regression.

Overall, research with faculty remained the strongest predictor of a student's engagement with diversity (β=0.113, $p<.01$), followed by ACT/SAT score (β=0.098, $p<.01$) and humanities major (β=0.096, $p<.01$). Band membership also entered the model (β=0.082, $p<.01$) and remained the fourth-most powerful predictor of a student's engagement with diversity at the end of the regression. This finding suggests that, although less racially diverse, band membership is a positive predictor of overall engagement with diversity.

Higher Order Learning (all students)

A total of 4,267 cases were included in the regression analysis of all students on the *higher order learning* scale following the listwise exclusion of missing data. Nine variables entered the regression model, and eight remained significant in the final step. These included: international student (negative relationship), female student, research with faculty, learning community, internship, volunteer work, undecided major (negative relationship), and band membership. The model explained a modest 6% of the variance in the outcome measure, *higher order learning*, $R^2 = .059$, $F(1, 4{,}257) = 29.889$, $p<.001$. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 23 in the appendix.

According to the results of the regression analysis, among the pre-college characteristics, being female (β=0.038, $p<.05$) was the only variable to make positive contributions to the model. ACT/SAT score entered the regression as a positive contributor (β=.041, $p<.01$) but was

no longer significant by the end of the analysis. International student status entered (β=-.039, $p<.05$) and remained (β=-.040, $p<.01$) a negative predictor of a student's higher order learning score, suggesting that being an international student was a predictor of diminished performance on this scale. Student of color designation and first generation status did not enter the regression.

Among the college variables, the strongest predictor of students' higher order learning score was their completion of, or intention to complete, research with faculty (β=0.116, $p<.01$), followed by membership in a learning community (β=.097, $p<.01$), participation in an internship (β=.083, $p<.01$), and volunteer work (β=.075, $p<.01$). Study abroad, student athlete status, and membership in a fraternity/sorority did not enter the regression. None of the academic majors entered in the regression with the exception of "undecided," which remained a negative predictor for higher order learning (β=-.030, $p<.05$).

Overall, research with faculty (β=0.116, $p<.01$) remained the strongest predictor of a student's higher order learning score. Membership in the marching band entered the model as a significant, but weaker, predictor of higher order learning (β=0.034, $p<.05$).

Reflective Learning (all students)

A total of 4,269 cases were included in the regression analysis of all students on the *reflective learning* scale following the listwise exclusion of missing data. Eleven variables entered the regression model, and 8 remained significant in the final step. These included: ACT/SAT, research with faculty, learning community, volunteer work, internship, humanities major, education major, and band membership. The model explained 8% of the variance in the outcome measure, *reflective learning*, $R^2 = .077$, $F(1, 4{,}257) = 32.350$, $p<.001$. Simple correlations

(Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 24 in the appendix.

According to the regression analysis, ACT/SAT score (β=0.031, $p<.05$) was the only pre-college variable to make a positive contribution to the model. Student of color designation entered the model as a positive contributor (β=.035, $p<.05$) but was no longer significant by the end of the analysis. The remaining pre-college variables, gender, international student, and first generation status, did not enter the model.

Among the college characteristics, research with faculty (β=.133, $p<.01$), membership in a learning community (β=.084, $p<.01$), volunteer work (β=.082, $p<.01$), and participation in an internship (β=.047, $p<.01$) were all significant positive factors in predicting a student's reflective learning score. Study abroad entered the regression as a positive predictor (β=.033, $p<.05$) but was no longer significant by the end of the analysis. Student athlete status and membership in a fraternity/sorority did not enter the model with any predictive value for reflective learning.

Among the academic majors, the strongest predictor of students' reflective learning score was a humanities major (β=0.134, $p<.01$). The only other major to enter the regression and remain a positive predictor of reflective learning was education (β=.054, $p<.01$). Music and music education entered the regression as a positive predictor (β=.041, $p<.05$) but was no longer significant at the end of the analysis. Overall, the humanities major remained the strongest positive predictor of students' reflective learning. Participation in the marching band was also a strong positive predictor of reflective learning (β=.074, $p<.01$).

Personal Social Responsibility (all students)

A total of 4,232 cases were included in the regression analysis of all students on the *personal social responsibility* scale following the listwise exclusion of missing data. Ten variables entered the regression model, and eight remained significant in the final step. These included: ACT/SAT (negative relationship), learning community, volunteer work, research with faculty, fraternity/sorority, internship, science/engineering major (negative relationship), and band membership. The model explained 9% of the variance in the outcome measure, *personal social responsibility*, $R^2 = .093$, $F(1, 4{,}221) = 43.429$, $p<.001$. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 25 in the appendix.

According to the regression analysis, the single strongest overall predictor of students' personal social responsibility was participation in the college marching band (β=0.172, $p<.01$). Among the pre-college characteristics, ACT/SAT score was the only variable with a significant predictive effect although, interestingly, the contribution was negative (β=-0.082, $p<.01$). Being female entered the regression as a positive contributor (β=.045, $p<.01$) but was no longer significant by the end of the analysis. Student of color designation, international student, and first generation status did not enter the model.

Among college characteristics, membership in a learning community (β=.126, $p<.01$), volunteer work (β=.122, $p<.01$), research with faculty (β=.085, $p<.01$), membership in a fraternity or sorority (β=.048, $p<.01$), and participation in an internship (β=.037, $p<.05$) were all positive factors in predicting a student's personal social responsibility score. Student athlete status and study abroad participation did not enter the model with any predictive value for personal social responsibility.

Two major courses of study entered and remained in the regression. The science/engineering major was a strong but negative predictor of personal social responsibility (β=-.058, $p<.01$). The Music and Music Education category entered the model with a slightly positive predictive power for the personal social responsibility score (β=.038, $p<.05$) but did not remain significant by the end of the analysis. None of the other majors entered the regression.

Overall, participation in the college marching band (β=.172, $p<.01$) remained a more powerful predictor of students' gains in personal social responsibility than any other identified variable including both membership in a learning community (β=.126, $p<.01$) and volunteer work (β=.122, $p<.01$), two of the programs more commonly associated with the construct.

Question 1 Summary

The purpose of the first research question was to explore the extent to which there were differences between all band and non-band students on each of the four target constructs in the study. According to the results of the independent samples *t*-tests between these groups, band students received higher scores than non-band students on the scales related to *engagement with diversity*, *reflective learning*, and *personal social responsibility* ($p<.01$). A smaller difference ($p<.05$) was observed between band and non-band students on the *higher order learning* scale.

Regression analyses for each of the four scales isolated and quantified the predictive power of each of the contributing variables in the models. On the *engagement with diversity* scale, research with faculty was the most powerful predictor of a student's performance, although participation in the marching band was also a strong predictor. On the *higher order learning* scale, research with faculty was the strongest predictor. Band participation remained a significant but weaker but predictor of a student's higher order learning. The most powerful

predictor of *reflective learning* was a humanities major, although band membership also demonstrated strong predictive power on the reflective learning scale. On the *personal social responsibility* scale, membership in the college marching band (β=0.172, p<.01) was the most powerful predictor of a student's performance.

These results suggest that students who participate in the college marching band are more likely than their non-band peers to indicate characteristics consistent with positive engagement with diversity, reflective learning, and personal social responsibility, even after accounting for pre-existing and co-existing college characteristics. In the case of the personal social responsibility model, participation in the college marching band was the most powerful predictor of a student's performance. Notably, participation in the college marching band appears to have greater predictive value for students' personal social responsibility than membership in a learning community and volunteer work.

Question 2

To what extent are there differences in measures of student engagement between marching band and non-marching band students during first-year and senior year?

In order to answer the second research question, independent samples *t*-tests were conducted between first-year band students (collected data) and first-year non-band students (data provided by NSSE) as well as between senior band students (collected data) and senior non-band students (data provided by NSSE). Summary findings are provided in Table 26. Following the *t*-tests,

regression analyses were conducted on each of the target variables within the first-year and senior categories. Regression data are provided in Tables 27-34 in the appendix.

Comparisons of *t*-test Data for Band and Non-Band Students by Class

In the first phase of the analysis, *t*-tests were conducted between band and non-band first-year students on each of the four target constructs. An important difference in the *engagement with diversity* scores was identified between first-year band students (M=2.92, SD=0.93) and first-year non-band students (M=2.66, SD = 0.92); $t(2530)=6.26$, $p<.01$. The data suggest that first-year band students are more engaged with diverse peers than first-year non-band students.

No difference was observed in the *higher order learning* scores between first-year band students and first-year non-band students, indicating that first-year band and non-band students perform similarly on items related to higher order learning. On the *reflective learning* scale, first-year band students (M=2.87, SD=0.73) scored higher than first-year non-band students (M=2.71, SD = 0.72); $t(2520)=4.88$, $p<.01$, suggesting that first-year band students are more reflective in their learning than first-year non-band students.

A difference in the *personal social responsibility* scores was identified between first-year band students (M=2.96, SD=0.70) and first-year non-band students (M=2.65, SD = 0.70); $t(2424)=9.25$, $p<.01$. These data suggest that first-year band students indicate characteristics consistent with personal social responsibility to a greater degree than first-year non-band students.

Following the comparisons between first-year band and non-band students, independent samples *t*-tests were conducted between senior band and non-band students on each of the four target constructs. On the *engagement with diversity* scale, senior band students (M=2.93,

SD=0.87) scored higher than senior non-band students (*M*=2.71, *SD* = 0.94); *t*(3040)=3.90, *p*<.01, suggesting that senior members of the marching band retain higher levels of engagement with diversity than their non-band senior peers.

As with the first-year students, no notable difference was observed in the *higher order learning* scores between senior band students (*M*=3.25, *SD*=0.69) and senior non-band students (*M*=3.18, *SD*=0.65); *t*(3030)=1.71, *p*=0.087. On the *reflective learning* scale, senior band students (*M*=2.95, *SD*=0.73) scored higher than senior non-band students (*M*=2.82, *SD* = 0.73); *t*(3031)=2.84, *p*<.01. This finding suggests that senior band students maintain an advantage over senior non-band students on items associated with reflective learning.

An important difference was identified between the *personal social responsibility* scores for senior band students (*M*=2.90, *SD*=0.70) and senior non-band students (*M*=2.67, *SD* = 0.75); *t*(2971)=4.94, *p*<.01. This finding suggests that band seniors are more likely than their non-band senior peers to indicate a range of desirable characteristics associated with personal social responsibility.

Effect sizes (Cohen's *d*) were negligible for the *higher order learning* scale for both first-year and senior students. Small effect sizes were observed for first-year and senior students on both the *engagement with diversity* and *reflective learning* scales. The largest effect sizes, though classified as small to moderate according to Cohen's (1992) guidelines, were observed for first-year and senior students on the *personal social responsibility* scale. Summary data are provided in Table 26.

Table 26
Independent samples t-tests for band v. non-band by class on target scales

Construct	*n*	Mean	*SD*	Sig. (2-tailed)	Cohen's *d*
Engagement w/ Diversity					
Seniors					
Band	323	2.93	0.87	**	0.24
Non-Band	2719	2.71	0.94		
First-Year					
Band	670	2.92	0.93	**	0.28
Non-Band	1862	2.66	0.92		
Higher Order Learning					
Seniors					
Band	316	3.25	0.69	ns	0.11
Non-Band	2716	3.18	0.65		
First-Year					
Band	660	3.09	0.69	ns	0.05
Non-Band	1863	3.06	0.65		
Reflective Learning					
Seniors					
Band	314	2.95	0.73	**	0.18
Non-Band	2719	2.82	0.73		
First-Year					
Band	654	2.87	0.73	**	0.22
Non-Band	1868	2.71	0.72		
Personal Social Resp.					
Seniors					
Band	283	2.90	0.70	**	0.31
Non-Band	2690	2.67	0.75		
First-Year					
Band	588	2.96	0.70	**	0.44
Non-Band	1838	2.65	0.70		

Note. Equal variances assumed. ** $p<.01$; ns = not significant

As with the first research question, a blocked stepwise regression analysis was conducted for each of the four target scales: *engagement with diversity*, *higher order learning*, *reflective learning*, and *personal social responsibility*. In order to fully evaluate the second research question, regression analyses were conducted on the target scales for both first-year students and senior students. Regression analyses for the second research question utilized the same 20 independent variables as the first research question.

Engagement with Diversity (first-year band and non-band students)

A total of 1,819 cases were included in the regression analysis of first-year band and non-band students on the *engagement with diversity* scale following the listwise exclusion of missing data. Ten of the 20 independent variables entered the regression model, and nine remained significant in the final step. These included: ACT/SAT, student of color, research with faculty, fraternity/sorority (negative), learning community, volunteer work, humanities major, education major, and band membership. The model explained 9% of the variance in the outcome measure, *engagement with diversity*, $R^2 = .085$, $F(1, 1{,}808) = 16.799$, $p<.001$. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry, and corresponding Beta (β) values are provided in Table 27 in the appendix.

According to the results of the engagement with diversity scale regression analysis for first-year students, ACT/SAT score ($\beta=0.113$, $p<.01$) and student of color designation ($\beta=0.065$, $p<.01$) were the only two pre-college characteristics to make positive contributions to the model. This finding suggests that students who score higher on the ACT/SAT and students of color are more likely to engage with diverse peers during their first year in college. Gender, international student status, and first generation status did not enter the regression.

Among the co-existing characteristics, the strongest predictor of first-year students' engagement with diversity was their completion of, or intention to complete, research with faculty (β=0.127, $p<.01$). It should be noted, however, that most first-year students who selected this category indicated an intention to complete research rather than the actual completion of research. In addition to research with faculty, participation in, or intention to participate in, a learning community (β=0.068, $p<.01$) and volunteer work (β=0.069, $p<.01$) each made positive contributions to the model. Participation in, or intention to participate in, a study abroad program entered the model as a positive predictor of engagement with diversity (β=0.051, $p<.05$) but was no longer significant by the end of the analysis. Of particular interest was the observation that membership in a fraternity or sorority was a strong negative predictor of first-year students' engagement with diversity (β=-0.081, $p<.01$). This finding suggests that first-year students who participate in fraternities or sororities are less likely to engage with diverse peers than first-year students who do not participate in these organizations. Student athlete and internship status did not enter the model.

As with the full sample of all band and non-band students, humanities (β=0.084, $p<.01$) and Education (β=0.48, $p<.05$) were the only two majors to enter and remain in the regression as positive contributors to first-year students' engagement with diversity, although the R^2 value was slightly higher for first-year students (.085) than the full sample (.077). Participation in the marching band also entered the regression model as a significant positive predictor of first-year students' engagement with diversity (β=0.089, $p<.01$).

Overall, research with faculty (β=0.127, $p<.01$) and ACT/SAT score (β=0.113, $p<.01$) remained the strongest positive predictors of first-year students' engagement with diversity, followed by participation in the marching band (β=0.089, $p<.01$). The only variable with

negative predictive implications for first-year students' engagement with diversity was membership in a fraternity or sorority (β=-0.081, $p<.01$).

Higher Order Learning (first-year band and non-band students)

A total of 1,823 cases were included in the regression analysis of first-year band and non-band students on the *higher order learning* scale following the listwise exclusion of missing data. Six variables entered the regression model, and all six remained significant in the final step. These included: female student, international student (negative), research with faculty, internship, learning community, and band membership. The model explained 7% of the variance in the outcome measure, *higher order learning*, $R^2 = .068$, $F(1, 1{,}816) = 22.187$, $p<.001$. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 28 in the appendix.

According to the results of the higher order learning scale regression analysis for first-year students, being female (β=0.068, $p<.01$) was the only pre-college variable to make positive contributions to the model, suggesting that female first-year students are more likely to indicate characteristics consistent with higher order learning than their male counterparts. International student status (β=-0.054, $p<.05$) was negatively associated with higher order learning. ACT/SAT score, international student status, and first generation status did not enter the model.

Among co-existing characteristics, the strongest predictor of students' higher order learning was their completion of, or intention to complete, research with faculty (β=0.140, $p<.01$), followed by participation, or intention to participate in, an internship (β=0.113, $p<.01$) and learning community (β=0.107, $p<.01$). Each of these variables was positively associated with

gains in higher order learning. Student athlete status, study abroad status, volunteer work, and fraternity/sorority membership did not enter the model, nor did any of the majors.

Overall, research with faculty (β=0.140, $p<.01$), participation in an internship (β=0.113, $p<.01$), and participation in a learning community (β=0.107, $p<.01$) remained the strongest predictors of first-year students' higher order learning score, although each of these variables stipulated either completion of, or intention to complete, the offering. Band membership also entered the model and remained a significant positive predictor of first-year students' higher order learning (β=0.046, $p<.05$).

Reflective Learning (first-year band and non-band students)

A total of 1,824 cases were included in the regression analysis of first-year band and non-band students on the *reflective learning* scale following the listwise exclusion of missing data. Nine variables entered the regression model, and eight remained significant in the final step. These included: research with faculty, learning community, study abroad, fraternity/sorority (negative), volunteer work, humanities major, education major, and band membership. The model explained 10% of the variance in the outcome measure, *reflective learning*, $R^2 = .098$, $F(1, 1{,}814) = 21.950$, $p<.001$. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 29 in the appendix.

According to the results of the regression analysis on the reflective learning scale for first-year students, ACT/SAT score was the only pre-college variable to enter the model (β=0.054, $p<.05$), but its predictive strength was no longer significant at the end of the analysis. Among the college characteristics, the strongest predictor of students' reflective learning was their

completion of, or intention to complete, research with faculty (β=0.182, $p<.01$), followed by participation in a learning community (β=0.077, $p<.01$), study abroad (β=0.062, $p<.01$), and volunteer work (β=0.075, $p<.01$).

Interestingly, membership in a fraternity or sorority was the only variable in the model to have a negative predictive effect for reflective learning (β=-0.048, $p<.05$), suggesting that first-year fraternity and sorority students are less likely to indicate characteristics consistent with reflective learning. Internship and student athlete status did not enter the regression model.

Among the major courses of study, humanities (β=0.115, $p<.01$) and education (β=0.074 $p<.01$) each demonstrated a positive predictive capacity on the reflective learning model. None of the other majors entered the regression. Overall, research with faculty (β=0.182, $p<.01$), a humanities major (β=0.115, $p<.01$), and participation in the marching band (β=0.083, $p<.01$) were the three most powerful positive predictors of first-year students' reflective learning.

Personal Social Responsibility (first-year band and non-band students)

A total of 1,807 cases were included in the regression analysis of first-year band and non-band students on the *personal social responsibility* scale following the listwise exclusion of missing data. Eight variables entered the regression model, and seven remained significant in the final step. These included: ACT/SAT (negative), learning community, volunteer work, research with faculty, internship, business major, and band membership. The model explained a respectable 11% of the variance in the outcome measure, *personal social responsibility*, $R^2 = .108$, $F(1, 1{,}798) = 27.237$, $p<.001$. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 30 in the appendix.

According to the results of the personal social responsibility regression analysis for first-year students, ACT/SAT score was the only pre-college variable to enter the model, but its predictive effect on personal social responsibility was negative (β=-0.103, $p<.01$). Gender, student of color designation, international student status, and first generation did not enter the model. Among the college characteristics, participation in a learning community (β=0.136, $p<.01$), volunteer work (β=0.104, $p<.01$), research with faculty (β=0.092, $p<.01$), and internship (β=0.058, $p<.05$) each made significant positive contributions to the model. Study abroad, fraternity/sorority membership, and student athlete status did not enter the regression model with any predictive power for personal social responsibility.

Somewhat surprisingly, considering the relatively small proportion of business majors in the marching band sample and the relatively strong predictive power of marching band membership on personal social responsibility, business was the only major to make a positive and significant contribution to personal social responsibility (β=0.064, $p<.01$). Music and music education entered the model but were no longer significant by the end of the analysis.

Of particular importance was the finding that participation in the marching band was the single strongest predictor of first-year students' personal social responsibility (β=0.206, $p<.01$). Participation in a learning community (β=0.136, $p<.01$) and volunteer work (β=0.104, $p<.01$) also made positive contributions to the model.

Engagement with Diversity (senior band and non-band students)

A total of 1,633 cases were included in the regression analysis of senior band and non-band students on the *engagement with diversity* scale following the listwise exclusion of missing data. Eight variables entered the regression model, and seven remained significant in the final step.

These included: student of color, ACT/SAT, learning community, volunteer work, research with faculty, humanities major, and music & music education major. The model explained 7% of the variance in the outcome measure, *engagement with diversity*, $R^2 = .065$, $F(1, 1{,}624) = 14.027$, $p<.001$. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 31 in the appendix.

According to the results of the engagement with diversity scale regression analysis for senior students, student of color designation (β=0.078, $p<.01$) and ACT score (β=0.080, $p<.01$) each made positive pre-college contributions to the model, suggesting that students who score higher on the ACT/SAT and students of color are more likely to continue to engage with diverse peers during their senior year in college. International student status entered the model as a negative predictor of senior engagement with diversity (β=-0.057, $p<.05$), but it was no longer significant by the end of the analysis. Gender and first generation status did not enter the regression.

Among co-existing student characteristics, the strongest predictor of students' engagement with diversity was participation in a learning community (β=0.108, $p<.01$), followed by volunteer work (β=0.106, $p<.01$) and research with faculty (β=0.105, $p<.01$). Student athlete status, membership in a fraternity or sorority, study abroad, and internship did not enter the model with any predictive value.

Humanities (β=0.084, $p<.01$) and music and music education (β=0.48, $p<.05$) were the only majors to enter the regression, and each made positive contributions to the model. Unlike the first-year student regression for engagement with diversity, participation in the marching band did not enter the senior regression model. Overall, the top three predictors of senior students'

engagement with diversity were participation in a learning community (β=0.108, $p<.01$), volunteer work (β=0.106, $p<.01$) and research with faculty (β=0.105, $p<.01$).

Higher Order Learning (senior band and non-band students)

A total of 1,632 cases were included in the regression analysis of senior band and non-band students on the *higher order learning* scale following the listwise exclusion of missing data. Seven variables entered the regression model, and six remained significant in the final step. These included: international student (negative), ACT/SAT, learning community, volunteer work, research with faculty, and internship. The model explained 6% of the variance in the outcome measure, *higher order learning*, $R^2 = .060$, $F(1, 1{,}624) = 14.817$, $p<.001$. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 32 in the appendix.

According to the results of the *higher order learning* scale regression analysis for seniors, ACT/SAT score (β=0.052, $p<.05$) was the only pre-college variable to make positive contributions to the model, suggesting that students who scored higher on the ACT in high school are more likely to indicate characteristics consistent with higher order learning as college seniors. As with first-year students, international student status (β=-0.052, $p<.05$) was negatively associated with higher order learning for seniors. Being female entered the regression as a positive predictor of higher order learning (β=0.049, $p<.05$) but was no longer significant by the end of the analysis. Student of color designation and first generation status did not enter the model.

Among college characteristics, as with the first-year students, the strongest predictor of higher order learning was research with faculty (β=0.106, $p<.01$). In addition, participation in a learning community (β=0.100, $p<.01$), volunteer work (β=0.104, $p<.01$), and internship (β=0.073, $p<.01$) each made positive contributions. Student athlete status, study abroad, and fraternity/sorority membership did not enter the model, nor did any of the majors or participation in the marching band.

Overall, research with faculty (β=0.106, $p<.01$), volunteer work (β=0.104, $p<.01$), and participation in a learning community (β=0.100, $p<.01$) were the top predictors of seniors' higher order learning. These findings were similar to those of the first-year students.

Reflective Learning (senior band and non-band students)

A total of 1,633 cases were included in the regression analysis of senior band and non-band students on the *reflective learning* scale following the listwise exclusion of missing data. Five variables entered the regression model, and all five remained significant in the final step. These included: volunteer work, research with faculty, learning community, humanities major, and band membership. The model explained 6% of the variance in the outcome measure, *reflective learning*, $R^2 = .056$, $F(1, 1{,}627) = 19.278$, $p<.001$. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 33 in the appendix.

According to the results of the reflective learning scale regression for seniors, none of the pre-college independent variables entered the model, suggesting that pre-college characteristics had no predictive value in determining the reflective learning scores for seniors. Among the college characteristics, volunteer work (β=0.108, $p<.01$), research with faculty (β=0.101, $p<.01$),

and participation in a learning community (β=0.100, $p<.01$) were each associated with positive gains in seniors' reflective learning. Membership in a fraternity or sorority, student athlete status, internship, and study abroad did not enter the regression model.

Among major courses of study, the strongest predictor of students' performance was humanities (β=0.125, $p<.01$). No other major entered the regression. However, participation in the marching band (β=0.057, $p<.05$) did make positive contributions to the reflective learning model, suggesting that senior band students, as with first-year band students, are more likely to indicate characteristics consistent with reflective learning than their non-band peers.

Personal Social Responsibility (senior band and non-band students)

A total of 1,616 cases were included in the regression analysis of senior band and non-band students on the *personal social responsibility* scale following the listwise exclusion of missing data. Seven variables entered the regression model, and six remained significant in the final step. These included: ACT/SAT (negative), volunteer work, learning community, research with faculty, fraternity/sorority, and band membership. The model explained 8% of the variance in the outcome measure, *personal social responsibility*, $R^2 = .079$, $F(1, 1{,}608) = 19.827$, $p<.001$. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 34 in the appendix.

According to the results of the personal social responsibility scale regression for seniors, ACT/SAT score was the only pre-college variable to have a significant effect on the model but, as with the first-year students, its correlation was negative (β=-0.075, $p<.01$). This finding suggests that students who score higher on the ACT/SAT are less likely to indicate

characteristics associated with personal social responsibility. Being female entered the regression as a positive predictor of seniors' personal social responsibility (β=0.077, $p<.01$) but was no longer significant by the end of the analysis. Student of color designation, international student status, and first generation did not enter the model.

Among the college characteristics, the strongest predictor of senior students' personal social responsibility was their completion of volunteer work (β=0.144, $p<.01$). In addition, participation in a learning community (β=0.135, $p<.01$), research with faculty (β=0.060, $p<.05$), and membership in a fraternity or sorority (β=0.065, $p<.01$) were all positive predictors of students' personal social responsibility. Study abroad, internship, and student athlete status did not enter the model with any predictive power for senior students' personal social responsibility.

None of the majors was found to have predictive power for personal social responsibility. Membership in the marching band continued to be a positive predictive factor for personal social responsibility among seniors (β=0.106, $p<.01$), although it was no longer the strongest predictor in the model. Overall, the top three predictors for personal social responsibility for seniors were volunteer work (β=0.144, $p<.01$), participation in a learning community (β=0.135, $p<.01$), and participation in the marching band (β=0.106, $p<.01$). Interestingly, the same three variables demonstrated the greatest predictive power of personal social responsibility among first-year students, although the relative contribution of each changed between first-year and senior year.

Question 2 Summary

The purpose of the second research question was to explore the extent to which there were differences between first-year band and non-band students, as well as between senior band and non-band students, on each of the four target constructs. Subsequent regression analyses were conducted to identify the significant predictors for the observed results.

According to the results of the *t*-tests between *first-year* band and non-band students, band students earned significantly higher scores than non-band students on the scales related to *engagement with diversity*, *reflective learning*, and *personal social responsibility*. No significant difference was observed between first-year band students and non-band students on the *higher order learning* scale.

Regression analyses for each of the four scales provided additional insight regarding the predictive power of each of the contributing variables in the models. On the *engagement with diversity* scale, research with faculty was the most powerful predictor of first-year students' performance, followed by participation in the marching band. On the *higher order learning* scale, research with faculty was the strongest predictor in the model, although band participation remained a weaker but positive predictor in the model. The most powerful predictor of *reflective learning* for first-year students was current or future research with faculty, followed by a humanities major and participation in the marching band. On the *personal social responsibility* scale, membership in the marching band ($\beta=0.206$, $p<.01$) was the most powerful predictor of first-year students' performance.

These results suggest that participation in the college marching band is a strong, positive factor in predicting first-year students' engagement with diversity, reflective learning, and personal social responsibility, even after accounting for pre-existing and co-existing college

characteristics. In the case of personal social responsibility, participation in the college marching band was the most powerful predictor of students' performance.

According to the results of the *t*-tests between *senior* band and non-band students, band seniors retained significantly higher scores than non-band seniors on the scales related to *engagement with diversity*, *reflective learning*, and *personal social responsibility*. As with the first-year students, no significant difference was observed between band seniors and non-band seniors on the *higher order learning* scale.

In the regression analyses for senior students, participation in a learning community was the most powerful predictor of a student's performance on the *engagement with diversity* scale, and research with faculty was the strongest predictor of a student's performance on the *higher order learning* scale. Marching band participation did not enter the regression models for either engagement with diversity or higher order learning among senior students, suggesting that band participation was no longer a significant factor in these constructs for seniors. A humanities major was the strongest predictor of seniors' performance in the *reflective learning* scale, and volunteer work was the strongest predictor of *personal social responsibility* for seniors. Band participation also entered the regression models with significant positive contributions to both the reflective learning and personal social responsibility scales. In the case of the personal social responsibility scale, band membership, volunteer work, and participation in a learning community were the three most powerful predictors of students' performance, although the strength of these variables varied between first-year and senior students. The relationship among these variables suggests that there may be some common characteristics that facilitate greater student development along the personal social responsibility scale.

Question 3

Within marching band and non-marching band populations, to what extent do first-year students differ from senior students on selected measures of student engagement?

In order to answer the third research question, independent samples *t*-tests were conducted between first-year and senior band students (collected data) as well as between first-year and senior non-band students (data provided by NSSE). Summary findings are provided in Table 35. Following the *t*-tests, regression analyses were conducted on each of the target variables within the band and non-band populations. As with the previous regression analyses, the first three blocks contained items related to pre-existing characteristics, college characteristics, and major. However, in order to adequately address the third research question, the band and non-band students were separated for the analyses, and the final block of the regression was allocated for the distinction between first-year students and senior students. Regression data for each of the constructs are provided in Tables 36-43.

Comparisons of *t*-test Data Between First-Year and Senior Students

Independent samples *t*-tests were conducted between band first-year students and band seniors as well as between non-band first-year students and non-band seniors on each of the four target constructs. There was no difference in the *engagement with diversity* scores for band first-year students (M=2.92, SD=0.93) and band seniors (M=2.93, SD = 0.87); $t(991)$=-0.19, p=0.851, suggesting that first-year band students' engagement with diversity is comparable to that of band seniors. A small but significant difference in the engagement with diversity scores was observed

between non-band first-year students (*M*=2.66, *SD*=0.92) and non-band seniors (*M*=2.71, *SD* = 0.94); *t*(4579)=-2.054, *p*<.05. However, engagement with diversity scores for band first-year students (*M*=2.92, *SD*=0.93) were higher than those for non-band *seniors* (*M*=2.71, *SD*=0.94).

There was an observed increase in the *higher order learning* scores between band first-year students (*M*=3.09, *SD*=0.69) and band seniors (*M*=3.25, *SD*=0.69); *t*(974)=-3.281, *p*<.01. An increase was also observed in the higher order learning scores between non-band first-year students (*M*=3.06, *SD*=0.65) and non-band seniors (*M*=3.18, *SD*=0.65); *t*(4577)=-5.941, *p*<.01. This finding suggests that both band and non-band seniors have developed greater higher order learning skills than their first-year band and non-band peers.

No difference was observed in the *reflective learning* scores between band first-year students (*M*=2.87, SD=0.73) and band seniors (*M*=2.95, *SD* = 0.73); *t*(966)=-1.449, *p*=0.148, although a difference in the reflective learning scores was observed between non-band first-year students (*M*=2.71, *SD*=0.72) and non-band seniors (*M*=2.82, *SD* = 0.73); *t*(4585)=-5.089, *p*<.01.

Lastly, no significant difference was observed in the *personal social responsibility* scores for band first-year students (*M*=2.96, *SD*=0.70) and band seniors (M=2.90, *SD* = 0.70); *t*(869)=1.082, *p*=0.279. Similarly, no significant difference was observed in the personal social responsibility scores of non-band first-year students (*M*=2.65, *SD*=0.70) and non-band seniors (*M*=2.67, *SD* = 0.75); *t*(4526)=-0.994, *p*=0.320. These results suggest that neither band nor non-band seniors perform significantly better than their first-year peers on this construct.

Effect sizes (Cohen's *d*) were negligible for the *engagement with diversity* and *personal social responsibility* scales for both band and non-band students. Slightly larger, though still small, effect sizes were observed in the *reflective learning* and *higher order learning* scales for both band and non-band students. Summary data are provided in Table 35.

Table 35
Independent samples t-tests for senior v. first-year students on target scales

Construct	*n*	Mean	*SD*	Sig. (2-tailed)	Cohen's *d*
Engagement w/ Diversity					
Band					
Senior	323	2.93	0.87	ns	0.01
First-Year	670	2.92	0.93		
Non-Band					
Senior	2719	2.71	0.94	*	0.05
First-Year	1862	2.66	0.92		
Higher Order Learning					
Band					
Senior	316	3.25	0.69	**	0.23
First-Year	660	3.09	0.69		
Non-Band					
Senior	2716	3.18	0.65	**	0.18
First-Year	1863	3.06	0.65		
Reflective Learning					
Band					
Senior	314	2.95	0.73	ns	0.11
First-Year	654	2.87	0.73		
Non-Band					
Senior	2719	2.82	0.73	**	0.15
First-Year	1868	2.71	0.72		
Personal Social Resp.					
Band					
Senior	283	2.90	0.70	ns	-0.09
First-Year	588	2.96	0.70		
Non-Band					
Senior	2690	2.67	0.75	ns	0.03
First-Year	1838	2.65	0.70		

Note. Equal variances assumed. ** $p<.01$; * $p<.05$; ns = not significant

As with the first two research questions, a blocked stepwise regression analysis was conducted on each of the four target scales for the analysis. In order to fully evaluate the third research question, the regression analyses were conducted on the target scales for band first-year and senior students as well as non-band first-year and senior students. Regression variables remained the same as in previous analyses, with the exception of the fourth block, which was allocated for the distinction between first-year and senior students.

Engagement with Diversity (first-year and senior *band* students)

Following the listwise exclusion of missing data, a total of 701 cases were included in the regression analysis of first-year and senior band students on the *engagement with diversity* scale. Five of the 20 independent variables entered the regression model, and four remained significant in the final step. These included: ACT/SAT, volunteer work, internship, and education major. The model explained only 6% of the variance in the outcome measure, *engagement with diversity*, $R^2 = .064$, $F(1, 695) = 9.518$, $p<.001$. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 36 in the appendix.

According to the results of the engagement with diversity scale regression for band students, the strongest pre-college predictor of first-year and senior students' performance was their ACT/SAT score ($\beta=0.152$, $p<.01$). First generation (a proxy for parent education) entered the model in the second step but was no longer significant by the end of the analysis. Gender, student of color designation, and international student did not enter the regression.

Among the college characteristics, volunteer work ($\beta=0.142$, $p<.01$) was the strongest positive predictor of band students' engagement with diversity. Participation in an internship

(β=0.083, $p<.05$) also made positive contributions to the model. Research with faculty, study abroad, participation in a learning community, student athlete status, and membership in a fraternity or sorority did not enter the model.

Education was the only major to enter the regression with positive predictive value (β=0.089, $p<.05$). Overall, ACT/SAT score (β=0.152, $p<.01$) and volunteer work (β=0.142, $p<.01$) remained the most powerful predictors of band students' engagement with diversity, suggesting that seniors with higher ACT/SAT scores and volunteer interest or experience are more likely to be engaged with diversity than their first-year band peers. First-year v. senior band membership did not enter the model, suggesting that first-year and senior band students are likely to indicate comparable engagement with diverse peers.

Higher Order Learning (first-year and senior *band* students)

Following the listwise exclusion of missing data, a total of 705 cases were included in the regression analysis of first-year and senior band students on the *higher order learning* scale. Six variables entered the regression model, and all six remained significant in the final step. These included: ACT/SAT, internship, learning community, volunteer work, study abroad, and senior student. The model explained 8% of the variance in the outcome measure, *higher order learning*, $R^2 = .082$, $F(1, 698) = 10.460$, $p<.001$. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 37 in the appendix.

According to the results of the higher order learning regression for band first-year and senior students, ACT/SAT score was the only positive pre-college predictor of higher order learning

(β=0.112, p<.01). Gender, student of color designation, first generation, and international student status did not enter the regression.

Among the college characteristics, four variables made notable contributions to the model. These included participation in an internship (β=0.148, p<.01), learning community (β=0.079, p<.05), volunteer work (β=0.078, p<.05), and study abroad (β=0.099, p<.01). Research with faculty, student athlete status, and fraternity/sorority membership did not enter the model, nor did any of the majors.

The first-year v. senior variable entered the regression with a strong positive contribution to the model (β=0.111, p<.01), suggesting that senior band members are more likely to indicate characteristics consistent with higher order learning than their first-year band peers. Overall, participation in an internship (β=0.148, p<.01) remained the strongest predictor for band students' higher order learning, followed by ACT/SAT score (β=0.112, p<.01) and first-year v. senior year status (β=0.111, p<.01).

Reflective Learning (first-year and senior *band* students)

Following the listwise exclusion of missing data, a total of 703 cases were included in the regression analysis of first-year and senior *band* students on the *reflective learning* scale. Five variables entered the regression model, and four remained significant in the final step. These included: research with faculty, volunteer work, science/engineering major (negative), and professional major (negative). The model explained 7% of the variance in the outcome measure, *reflective learning*, R^2 = .073, $F(1, 697) = 11.030$, p<.001. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 38 in the appendix.

None of the pre-college characteristics entered the reflective learning scale regression model for band first-year and senior students. Among the co-existing variables, research with faculty (β=0.192, $p<.01$) and volunteer work (β=0.118, $p<.05$) were the only two variables to make positive contributions, suggesting that band seniors who complete research with faculty or volunteer work are more likely to indicate reflective learning than their first-year peers.

Two of the academic major categories entered the regression with a relatively strong *negative* predictive effect. These included science and engineering (β=-0.115, $p<.05$) and professional (β=-0.108, $p<.05$). This finding suggests that band seniors who pursue science and engineering or professional programs are less likely to exhibit reflective learning than their first-year peers. First-year v. senior status did not enter the regression model for band students, suggesting that there was no predictive power of senior status on reflective learning.

Personal Social Responsibility (first-year and senior *band* students)

Following the listwise exclusion of missing data, a total of 703 cases were included in the regression analysis of first-year and senior *band* students on the *personal social responsibility* scale. Three variables entered the regression model, and all three remained significant in the final step. These included: research with faculty, learning community, and volunteer work. The model explained 6% of the variance in the outcome measure, *personal social responsibility*, $R^2 = .057$, $F(1, 699) = 14.068$, $p<.001$. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 39 in the appendix.

According to the results of the personal social responsibility regression analysis for first-year and senior band students, the strongest predictor of personal social responsibility was research

with faculty (β=0.133, $p<.01$), followed by participation in a learning community (β=0.125, $p<.01$), and volunteer work (β=0.101, $p<.01$). This finding suggests that band seniors who participate in these offerings are more likely to indicate characteristics consistent with personal social responsibility than band first-year students. None of the other pre-college, college, or major course of study variables entered the model. Status as a senior band student had no predictive effect for personal social responsibility, suggesting that senior band students are no more likely to indicate these characteristics than first-year band students.

Engagement with Diversity (first-year and senior *non-band* students)

Following the listwise exclusion of missing data, a total of 2,751 cases were included in the regression analysis of first-year and senior *non-band* students on the *engagement with diversity* scale. Nine variables entered the regression model, and all nine remained significant in the final step. These included: student of color, ACT/SAT, international student (negative), research with faculty, learning community, volunteer work, fraternity/sorority (negative), humanities major, and senior status. The model explained 7% of the variance in the outcome measure, *engagement with diversity*, $R^2 = .070$, $F(1, 2{,}741) = 23.073$, $p<.001$. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 40.

According to the results of the engagement with diversity regression, student of color designation (β=0.085, $p<.01$) and ACT/SAT score (β=0.084, $p<.01$) each made positive contributions to the model among pre-college variables, suggesting that non-band senior students of color and non-band seniors with higher ACT/SAT scores were more likely to be engaged with diversity than their first-year peers. International student status was negatively correlated with

gains in engagement with diversity (β=-0.053, $p<.01$), suggesting that non-band senior international students are less likely to be engaged with diversity than their first-year peers.

Within the college characteristics, the strongest predictor of non-band first-year and senior students' performance on the personal social responsibility scale was research with faculty (β=0.130, $p<.01$), followed by participation in a learning community (β=0.098, $p<.01$) and volunteer work (β=0.075, $p<.01$). Interestingly, participation in a fraternity or sorority was negatively correlated with engagement with diversity (β=-0.052, $p<.01$), suggesting that senior non-band students who are members of a fraternity or sorority are *less* likely to be engaged with diversity than their first-year peers.

The only major to enter the regression model was humanities, and its predictive power for engagement with diversity between non-band first-year and senior students was positive (β=0.104, $p<.01$). First-year and senior status also entered the model with a significant positive impact (β=0.063, $p<.01$), suggesting that, despite the contradictory effect observed among fraternity and sorority members, non-band seniors are more likely to be engaged with diversity than their non-band first-year peers.

Higher Order Learning (first-year and senior *non-band* students)

Following the listwise exclusion of missing data, a total of 2,750 cases were included in the regression analysis of first-year and senior *non-band* students on the *higher order learning* scale. Seven variables entered the regression model, and all seven remained significant in the final step. These included: international student (negative), female student, research with faculty, learning community, volunteer work, internship, and senior status. The model explained 8% of the variance in the outcome measure, *higher order learning*, $R^2 = .075$, $F(1, 2{,}742) = 31.707$,

$p<.001$. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 41 in the appendix.

According to the results of the higher order learning regression for non-band first-year and senior students, being female was the only positive predictor among the pre-college variables (β=0.054, $p<.01$). International student status was a significant negative predictor of higher order learning (β=-0.059, $p<.01$), suggesting that non-band international senior students are less likely to indicate higher order learning than their first-year peers. ACT/SAT score, student of color designation, and first generation status did not enter the regression.

Among the college characteristics, four variables made positive contributions to the model. These included research with faculty (β=0.130, $p<.01$), participation in a learning community (β=0.113, $p<.05$), volunteer work (β=0.071, $p<.05$), and internship (β=0.070, $p<.01$). Student athlete status and fraternity/sorority membership did not enter the model, nor did any of the majors. Lastly, the distinction between first-year and senior students did make a positive contribution to the model (β=0.128, $p<.01$), suggesting that senior non-band students are more likely to indicate gains in higher order learning than their first-year non-band peers.

Reflective Learning (first-year and senior *non-band* students)

Following the listwise exclusion of missing data, a total of 2,754 cases were included in the regression analysis of first-year and senior non-band students on the *reflective learning* scale. Six variables entered the regression model, and five remained significant in the final step. These included: research with faculty, learning community, volunteer work, humanities major, and senior status. The model explained 7% of the variance in the outcome measure, *reflective*

learning, $R^2 = .069$, $F(1, 2{,}747) = 33.823$, $p<.001$. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 42.

None of the pre-college characteristics entered the reflective learning scale regression model for non-band first-year and senior students. Among co-existing variables, the strongest predictor of students' reflective learning performance was research with faculty (β=0.143, $p<.01$), followed by participation in a learning community (β=0.093, $p<.01$) and volunteer work (β=0.093, $p<.01$). These findings suggest that non-band seniors who conduct research with faculty, participate in learning communities, or complete volunteer work are more likely to indicate gains in the reflective learning construct than their non-band first-year peers.

The humanities major was the only academic program to make positive contributions to the model (β=0.136, $p<.01$). The education major entered the model (β=0.039, $p<.05$) but was no longer significant by the end of the analysis. First-year v. senior status also made a positive contribution to the model (β=0.073, $p<.01$), suggesting that non-band senior students are more likely than their non-band first-year peers to indicate gains on the reflective learning scale.

Personal Social Responsibility (first-year and senior *non-band* students)

Following the listwise exclusion of missing data, a total of 2,720 cases were included in the regression analysis of first-year and senior non-band students on the *personal social responsibility* scale. Eight variables entered the regression model, and seven remained significant in the final step. These included: ACT/SAT (negative), female student, learning community, volunteer work, fraternity/sorority, research with faculty, and senior status. The model explained 8% of the variance in the outcome measure, *personal social responsibility*, $R^2 =$

.082, $F(1, 2{,}711) = 30.291$, $p<.001$. Simple correlations (Pearson's r) for each independent variable and the outcome target variable, along with the steps of entry and corresponding Beta (β) values, are provided in Table 43 in the appendix.

According to the results of the personal social responsibility regression analysis for non-band first-year and senior students, being female was the only pre-college variable to make positive contributions to the model (β=0.046, $p<.05$). Curiously, ACT/SAT score was negatively correlated with gains in personal social responsibility (β=-0.086, $p<.01$), suggesting that senior non-band students who scored well on the ACT/SAT are less likely to indicate characteristics consistent with personal social responsibility than their first-year non-band peers. Student of color designation, international student, and first generation status did not enter the regression.

Among co-existing variables, the strongest predictor of students' performance on the scale was participation in a learning community (β=0.144, $p<.01$), followed by volunteer work (β=0.135, $p<.01$), research with faculty (β=0.071, $p<.01$), and membership in a fraternity or sorority (β=0.064, $p<.01$). Each made positive contributions to the model, suggesting that senior non-band students who participate in these offerings are more likely to indicate gains on this scale than their first-year non-band peers. Student athlete status, study abroad, and internship did not enter the model.

Among the majors, science/engineering entered the model with a negative predictive effect on non-band students' personal social responsibility, but it was no longer significant by the end of the analysis. First-year v. senior status entered the regression with a positive effect on the model (β=0.065, $p<.01$), suggesting that non-band seniors are more likely to indicate gains in personal social responsibility than non-band first-year students.

Question 3 Summary

The purpose of the third research question was to explore the extent to which there were differences between first-year and senior students, within the band and non-band samples, on each of the four target constructs. Subsequent regression analyses were conducted to identify the significant predictors within each construct.

According to the results of the *t*-tests between first-year and senior *band* students, there was no difference in the scores of band seniors as compared with band first-year students on the scales related to *engagement with diversity*, *reflective learning*, and *personal social responsibility*. Band seniors did score significantly higher on the *higher order learning* scale than their first-year band peers.

Regression analyses for first-year and senior band students on each of the four scales provided additional insight regarding the predictive power for each of the contributing variables in the models. On the *engagement with diversity* scale, ACT/SAT and volunteer work were the most powerful predictors for senior band students. On the *higher order learning* scale, participation in an internship was the strongest predictor, followed by ACT/SAT score and status as a senior. On the *reflective learning* scale, research with faculty and volunteer work each made similar positive contributions to the model. Interestingly, science/engineering and professional majors made negative contributions to the model, suggesting that band seniors who major in these programs are less likely to indicate gains in reflective learning than their first-year peers. Lastly, on the *personal social responsibility* scale, research with faculty, participation in a learning community, and volunteer work were the strongest predictors of senior band student performance over their first-year peers.

According to the results of the *t*-tests between first-year and senior *non-band* students, non-band seniors scored significantly higher on the *engagement with diversity*, *higher order learning*, and *reflective learning* scales than their first-year peers. However, there was no significant difference between senior and first-year band non-band students on the *personal social responsibility* scale.

Among non-band first-year and senior students, the most powerful predictor of *engagement with diversity*, *higher order learning*, and *reflective learning* was research with faculty. Participation in a learning community and volunteer work also made positive contributions to the model. These findings suggest that non-band seniors who participate in these offerings are more likely than their first-year peers to indicate gains on the constructs. Interestingly, membership in a fraternity or sorority was a negative predictor for senior engagement with diversity among non-band students. Overall, the most powerful positive predictor of a senior non-band student's personal social responsibility was participation in a learning community.

The recurring presence of research with faculty, participation in a learning community, and volunteer work among the positive regression variables suggests that these variables, along with participation in the college marching band, may have broad predictive value for determining which students are most likely to indicate achievement on related engagement scales.

Patterns of Engagement Across Target Constructs

Table 44 provides a composite review of all four target constructs and corresponding regression variables for both band and non-band students at the first-year and senior levels. Among the notable recurring variables associated with positive performance across all four

constructs are: participation in a learning community, research with faculty, volunteer work, and membership in the college marching band.

Among pre-college characteristics, being female was positively associated with performance on the higher order learning construct in comparisons between all band and non-band students, first-year band and non-band students, and non-band senior v. first-year students. Being female was also positively associated with performance on the personal social responsibility scale in comparisons between non-band senior and first-year students. Being a student of color was positively associated with performance on the engagement with diversity scale in comparisons between all band and non-band students, first-year band and non-band students, senior band and non-band students, and non band senior v. first-year students.

Status as an international student was negatively associated with performance on the engagement with diversity scale in comparisons between all band and non-band students as well as between non-band senior and first-year students. International student status was also negatively associated with performance on the higher order learning scale in comparisons between all band and non-band students, first-year band and non-band students, senior band and non-band students, and non-band senior v. first-year students. The findings for ACT/SAT score were mixed, with positive associations between ACT/SAT and performance on the engagement with diversity scale as well as some higher order learning and reflective learning categories, but negative associations with performance on most personal social responsibility categories.

Among the co-existing college characteristics, participation in a learning community, volunteer work, and research with faculty were consistently associated with positive performance on all four target scales: engagement with diversity, higher order learning, reflective learning, and personal social responsibility. This finding is notable in that each of these co-existing

characteristics or co-curricular offerings has been identified as a "high-impact educational practice" by the Association of American Colleges & Universities (Kuh, 2008). These types of programs, according to Kuh (2008), have been shown to foster greater student engagement and lead to greater overall retention.

Participation in an internship, another high-impact educational practice, was associated with positive performance on all categories within the higher order learning scale and some categories within each of the remaining scales. Study abroad, often cited as an important component of diversity and global learning (Kuh, 2008), was positively associated with gains on the higher order learning scale in comparisons between band senior and first-year members as well as on the reflective learning scale in comparisons between first-year band and non-band students.

Conversely, results for membership in a fraternity or sorority were seemingly contradictory, with negative associations between fraternity/sorority membership and engagement with diversity for all band v. non-band students, first-year band and non-band students, and non-band senior v. first-year students, as well as reflective learning among first-year band and non-band students. However, positive associations between membership in a fraternity/sorority and performance on the personal social responsibility scale were observed between all band and non-band students, senior band and non-band students, and between non-band senior and first-year students.

Among academic majors, a humanities major was positively associated with performance on the engagement with diversity scale and the reflective learning scale for all band v. non-band students, first-year band v. non-band students, senior band v. non-band students, as well as between non band senior and first-year students. Interestingly, the science/engineering major and professional major were each negatively associated with reflective learning between band

senior and first-year students. Similarly, the science/engineering major was negatively associated with performance on the personal social responsibility scale in comparisons between all band and non-band students. An education major was positively associated with gains in several categories on the engagement with diversity and reflective learning scales. Music and Music Education were positively associated with performance on the engagement with diversity scale in comparisons between senior band v. non-band students. Conversely, having an undecided major was associated with negative performance on the higher order learning scale in comparisons between all band and non-band students.

Much like membership in a learning community, volunteer work, and research with faculty, participation in the college marching band was associated with positive performance in a number of categories for each of the four scales: engagement with diversity, higher order learning, reflective learning, and personal social responsibility. Status as a senior in the band was not associated with positive or negative performance on the engagement with diversity scale, reflective learning scale, or personal social responsibility scale, but it was associated with positive gains on the higher order learning scale. Among non-band students, status as a senior was associated with positive performance on each of the four target scales.

Table 44
Significant variables predicting all target scales

Variable	Engagement w/ Diversity: All: Band v. Non-Band	Engagement w/ Diversity: 1st Yr: Band v. Non-Band	Engagement w/ Diversity: Snr: Band v. Non-Band	Engagement w/ Diversity: Band: Senior v. 1st Year	Engagement w/ Diversity: Non-Band: Snr v. 1st Yr	Higher Order Learning: All: Band v. Non-Band	Higher Order Learning: 1st Yr: Band v. Non-Band	Higher Order Learning: Snr: Band v. Non-Band	Higher Order Learning: Band: Senior v. 1st Year	Higher Order Learning: Non-Band: Snr v. 1st Yr	Reflective Learning: All: Band v. Non-Band	Reflective Learning: 1st Yr: Band v. Non-Band	Reflective Learning: Snr: Band v. Non-Band	Reflective Learning: Band: Senior v. 1st Year	Reflective Learning: Non-Band: Snr v. 1st Yr	Personal Social Resp.: All: Band v. Non-Band	Personal Social Resp.: 1st Yr: Band v. Non-Band	Personal Social Resp.: Snr: Band v. Non-Band	Personal Social Resp.: Band: Senior v. 1st Year	Personal Social Resp.: Non-Band: Snr v. 1st Yr
Pre-college																				
Female						*	**			**										*
Student of Color	**	**	**		**															
First Generation																				
International Student	-**				-**	-**	-*	-*		-**										
ACT/SAT	**	**	**	**	**			*	**		*					-**	-**	-**		-**
College																				
Learning Community	**	**	**		**	**	**	**	*	**	**	**	**		**	**	**	**	**	**
Volunteer Work	**	**	**	**	**	**		**	*	**	**	**	**	**	**	**	**	**	**	**
Research w/ Faculty	**	**	**		**	**	**	**		**	**	**	**	**	**	**	**	*	**	**
Internship	**			*		**	**	**	**	**	**					*	*			
Study Abroad									**			**								
Athletic Team																				
Fraternity/Sorority	-*	-**			-**							-*				**		**		**
Major																				
Humanities	**	**	**		**						**	**	**		**					
Science/Engineering														-**		-**				
Business																	**			
Education	*	*		*							**	**								
Professional														-**						
Music & Music Ed.			**																	
Undecided						-*														
Band Membership	**	**				*	*				**	**	*			**	**	**		
Senior (v. First-Year)					**				**	**					**					**

Note. Significance provided for Final Beta values; ** $p<.01$; * $p<.05$; "-" = inverse relationship; blank boxes are not statistically significant

Chapter Summary

A review of the descriptive statistics and a series of *t*-tests and regression analyses were utilized to frame and evaluate the three primary research questions presented in this study. According to the results of preliminary analyses, it was discovered that the parents of band students are better educated than the parents of non-band students, band students earned higher standardized test scores (ACT/SAT) than their non-band peers, band students were less engaged in classroom activities but more engaged in co-curricular activities, and band students were more satisfied with their overall college experience than non-band students.

Differences between and among band and non-band students on four target constructs (engagement with diversity, higher order learning, reflective learning, and personal social responsibility) were explored through a series of independent samples *t*-tests, and effect sizes (Cohen's *d*) were provided as measures of the strength of the relationship between variables. In addition, regression analyses were conducted within the context of a range of pre-college and college characteristics to determine the extent to which participation in the college marching band contributed to each of the outcome variables. Beta values were provided as reflections of the strength of the relationships for all variables that entered the regression models.

In comparisons between all band and non-band students, marching band students were significantly more likely to indicate greater engagement with diversity, reflective learning, and personal social responsibility than their non-band peers. After controlling for pre-college and college characteristics, marching band participation remained a positive predictor of a student's engagement with diversity, higher order learning, reflective learning, and personal social responsibility. Even after controlling for pre-college and co-existing variables, band participation remained the single strongest predictor of personal social responsibility.

Both first-year and senior marching band students indicated higher levels of engagement with diversity, reflective learning, and personal social responsibility than their first-year and senior non-band peers. After controlling for pre-college and co-existing characteristics, marching band participation remained the single strongest predictor of personal social responsibility among first-year students, and volunteer work remained the strongest predictor of personal social responsibility among senior students.

In comparisons between first-year and senior students, band seniors indicated higher scores than band first-year students on the higher order learning scale, and non-band seniors indicated higher scores than non-band first-year students on the engagement with diversity, higher order learning, and reflective learning scales. Of particular interest was the observation that neither the band nor non-band seniors indicated higher scores than their first-year peers on the personal social responsibility scale. In fact, although not statistically significant, the senior band students' mean score on the *personal social responsibility* scale was actually slightly lower than that for the first-year band students.

The amount of variability in the engagement scales accounted for by the demographic and college variables for each of the regression analyses ranged from 6% to 11%. Several patterns of engagement emerged including a positive relationship between participation in a learning community, volunteer work, research with faculty, and participation in the college marching band with greater achievement on each of the four target constructs in this study: engagement with diversity, higher order learning, reflective learning, and personal social responsibility. A review of these findings and their implications for policy and practice, as well as limitations of the study, suggestions for future research, and a case for the reevaluation of the college marching band as a critical vehicle for the cultivation of student engagement are discussed in Chapter 6.

CHAPTER SIX: SUMMARY, DISCUSSION, CONCLUSION

Overview

The purpose of this study was to evaluate the types and degrees of engagement indicated by college marching band students as compared with those of their non-band peers. In addition to highlighting several significant differences on items related to the quality of the students' college experiences and their perceptions of those experiences, important differences were identified in the extent to which these students indicate engagement with diversity, reflective learning, as well as a range of behaviors and skills associated with personal social responsibility.

This chapter reviews the principal findings of the study, including notable differences in key items, as well as their potential implications for the field. Limitations of the study are discussed, recommendations for future research are proposed, and a case is made for the recognition of the college marching band in the undergraduate curriculum as an important offering in facilitating the fundamental outcomes of a higher education.

Summary

Selected items from the National Survey of Student Engagement (NSSE) were administered to students in 20 Division-I college marching bands throughout the United States at universities that had previously administered the full NSSE to their undergraduate students in the same year. The resultant 1,882 band member responses were compared with 6,095 non-band responses from the corresponding institutions provided by the NSSE Institute. A series of statistical analyses were conducted to evaluate potential differences between band and non-band students.

A large majority of band respondents indicated they had between four and eight years of marching band experience. Only a small fraction indicated it was their first year in a marching

band. Among the band sample, first-year students outnumbered seniors by a ratio of approximately two to one, reflecting the attrition that may occur in the college marching band over four years, particularly between sophomore and junior year (Hill, 2012). Because the NSSE is typically administered to first-year and senior students, the non-band sample provided by the NSSE Institute was composed primarily of first-year students and seniors. Females outnumbered males in both the band and non-band samples, although the disparity was greater among the non-band students than among the band students. The racial profile of non-band students was slightly more diverse than the band sample.

Parents of band students earned higher levels of education, as reflected in the number and types of degrees, than their non-band peers. Similarly, the ACT (and standardized SAT) scores of band students were higher ($p<.01$) than those of their non-band peers. A higher proportion of non-band students than band students were the first in their families to earn a college degree. Non-band students were twice as likely than their band peers to major in professional and business programs, whereas band students were four times more likely to major in education, music, or music education. Although band students appeared to be less engaged in curricular offerings than their non-band peers, both groups of students indicated that they received the same mean grades of 3.3 on a 4.0 scale or a B+ overall.

In addition to indicating greater extracurricular and co-curricular engagement, band students perceived a greater institutional emphasis than non-band students on attending campus events and activities as well as encouraging contact among students from different economic, social, and racial or ethnic backgrounds. Band students also indicated more favorable responses than their non-band peers on a range of items related to overall satisfaction including the quality of

their relationships with faculty and other students, the quality of their overall educational experience, and their likelihood of attending the same institution again if starting anew.

On items and scales related to the first research question, band students indicated significantly greater engagement with diversity, reflective learning, and personal social responsibility than their non-band peers. Effect sizes (Cohen's *d*) for the *t*-test comparisons between band and non-band students on the target constructs ranged from a negligible 0.05 for higher order learning to a more moderate 0.36 for personal social responsibility. Most notably, even after controlling for a range of pre-college and co-existing student characteristics through regression analyses, participation in the college marching band remained the strongest predictor of a student's personal social responsibility.

In the second research question, the *t*-test evaluations of potential differences between band and non-band students at the first-year and senior levels found band students at both levels indicated significantly greater engagement with diversity, reflective learning, and personal social responsibility than their non-band peers. Effect sizes ranged from a negligible 0.05 (first-years) and 0.11 (seniors) on the higher order learning scale to a moderate 0.31 (seniors) and 0.44 (first-years) on the personal social responsibility scale. According to the regression analyses, participation in the college marching band was the single strongest predictor of personal social responsibility among first-year students and volunteer work was the strongest predictor of personal social responsibility among senior students.

In the third research question, the evaluation of differences between first-year and senior students within the band and non-band samples found band seniors earned higher scores on the higher order learning scale than their first-year band peers, and non-band seniors earned higher scores on the engagement with diversity, higher order learning, and reflective learning scales

than their first-year non-band peers. Effect sizes were generally smaller throughout this category with maximum values of 0.23 (band senior v. first-year) and 0.18 (non-band senior v. first-year) for the higher order learning scale.

Variability in the engagement scales accounted for by the pre-college and co-existing demographic and college variables in the regression analyses ranged from 6% to 11%. Among these variables, several continued to appear across multiple regression analyses including participation in a learning community, volunteer work, research with faculty, and participation in the college marching band. This finding suggests that these variables may play important roles in influencing students' self-reported performance on the target constructs for this analysis.

Discussion

There is an elegant through-composed line that may explain at least some of the observed differences between marching band participants and non-band participants during the undergraduate experience. It begins with a group of students who appear, in general, to be more academically capable, more privileged, and more engaged. In the marching band setting, these students interact with diverse peers through an intensely demanding and collaborative pursuit as a precursor for facilitating cognitive dissonance and promoting further educational growth and development. As these students learn to appreciate the commonalities among their differences and the importance of making individual sacrifices in order to achieve shared objectives, they may begin to indicate patterns of behavior that lead to greater integration with others in the broader community as thoughtful and responsible citizens.

This theory does not presume that the conditions of the college marching band are solely responsible for the observed differences between band and non-band students or even that

marching band participation is the only offering that can facilitate the primary aims and objectives of a college education, but it is suggested that the college marching band can provide a critically important model for complementary growth in the same way that the science laboratory model enhances traditional classroom instruction. Music education and student engagement theory provide the overarching framework in which college marching band participation serves as a vital catalyst for growth.

It would be impossible to attribute any of the individual or collective outcomes in this study to a single campus experience. The college environment is complex, and students bring a range of pre-existing and co-existing characteristics to the campus setting, regardless of whether or not they choose to participate in the marching band. Each of these factors undoubtedly contributes to the development and formation of these students. In order to better understand the role of marching band participation and other curricular and co-curricular offerings in facilitating desirable outcomes of a higher education, a consideration and evaluation of these variables was incorporated into the study.

The preliminary review of descriptive statistics found lower percentages of Asian and African American students and a higher percentage of Hispanic students among the band sample than among the non-band sample. Overall, the percentage of white students among the band sample (80%) was greater than that among the non-band sample (73%). Although this finding might suggest that opportunities for engagement with racially diverse peers within the marching band sample were limited, survey responses indicated that engagement with diversity among band members was greater than that among non-band students. When assessing the level of engagement with diversity indicated among band students in an apparently less racially diverse sample, it is important to consider that ethnic and cultural diversity are not synonymous with

political, ideological, religious, or socioeconomic diversity, regardless of potential correlations. In addition, the opportunities for engagement may be greater within the college band setting.

Despite a higher band survey response rate among females than males, the finding that marching band membership at selected institutions is composed of more males than females provided an interesting contrast to research suggesting that women are more purposefully engaged than men during college (Sander, 2012). If men are deemed to be less engaged than women, but men comprise the majority of members in the college marching band, the finding that band members are more purposefully engaged than non-band members within their communities is even more striking. This phenomenon may also offer at least a partial explanation for the recurring emphasis on research with faculty among survey participants as men apparently place a higher premium on this offering than women (Sander, 2012).

All of the academic majors were represented among the band and non-band populations, although some differences were observed. Notably, there were nearly twice as many business and professional majors among non-band students as band students. Conversely, band students were four times more likely than their non-band peers to major in music, education, or music education. Despite these distinctions, a large majority of band students (85%) indicated a major in a field of study unrelated to music or music education. Although data were not available to confirm this theory, the vocational orientation among non-band students may be related to socioeconomic status and/or a higher cultural capital among band students. The observation that more non-band students than band students were the first in their families to attend college or earn a bachelors degree (first generation) seems to support this hypothesis.

Consistent with the findings regarding first generation status, it was discovered that both the mothers and fathers of band students were better educated than the parents of non-band students.

Correlations among parent education, income, and SAT performance (Goldfarb, 2014), along with previous research citing a link between music performance in secondary school and higher scores on the SAT (College Board, 2012), suggested that band students may be more likely achieve higher scores on the SAT. Participation in the arts during high school has consistently correlated with higher scores on both the math and verbal sections of the SAT, and that correlation is even stronger for students who study the arts over four years versus those who participate fewer than four years (Vaughn & Winner, 2000). A review of survey data confirmed that marching band students scored significantly higher on standardized college entrance examinations than their non-band peers.

Some degree of caution should be exercised when interpreting these findings. It may be possible that students involved with the arts could be natural higher achievers, they may come from families that value the arts and academic achievement, or they may simply attend schools that emphasize both academic and artistic achievement (Vaughn & Winner, 2000). Despite findings by Schellenberg (2006) suggesting a positive correlation between early music study and greater academic performance and higher IQ scores at the college level even after correcting for parents' education and income, a more recent but unrelated study by Elpus (2011) found no difference between music and non-music students on standardized tests after controlling for systematic differences. Aside from any correlations between music participation and academic achievement, it seems logical that cultured and engaged parents may simply encourage band participation as part of a well-rounded education.

It remains unclear whether band participation facilitates greater performance on standardized examinations or whether higher achieving students are more likely to participate in the band. However, the finding suggests that the families of band students may be more privileged than the

families of non-band students. Families of band students, therefore, may be more likely to value the type of cultural capital that encourages both music participation as well as meaningful personal social responsibility within the broader community.

On items related to interpersonal engagement and reflection, band students indicated significantly higher levels of achievement than their non-band peers. Specifically, band students indicated they were more likely than their non-band peers to work with faculty members on activities other than coursework; participate in a community-based project as part of a course; tutor or teach other students; have serious conversations with students of a different race or ethnicity; have serious conversations with students who are different in terms of their religious beliefs, political opinions, or personal values; examine the strengths and weaknesses of their own views on a topic or issue; try to better understand someone else's views by imagining how an issue looks from his or her perspective; and learn something that changes the way they understand an issue or topic. Taken in total, these items would seem to suggest that the band students are more engaged than their non-band peers along a range of desirable vectors related to positive and productive student engagement within the university community.

Surprisingly, band students appeared to be less engaged than their non-band peers on a range of classroom behaviors. Specifically, band students indicated they were less likely to ask questions in class or contribute to class discussions; work with classmates outside of class to prepare class assignments; put together ideas or concepts from different courses when completing assignments or during class discussions; include diverse perspectives in class discussions or assignments; work on a paper or project that required integrating ideas or information from various sources; prepare two or more drafts of a paper before turning it in; discuss ideas from readings or classes with others outside of class; work harder than they thought

they could to meet an instructor's standards or expectations; and discuss grades or assignments with an instructor.

This finding seems to imply that band students are less invested than their non-band peers on important and fundamental curricular objectives. The pattern also offers a stark contrast to the engagement indicated among band students in other academic arenas. How is it possible, for example, that band students are *more* likely to conduct research with faculty and have favorable relationships with faculty but *less* likely to work harder than they thought they could to meet an instructor's expectations or discuss grades or assignments with an instructor? Similarly, how is it possible that band students are *more* engaged with diversity than their non-band peers but *less* likely to include diverse perspectives in class discussions or assignments?

One possible theory for the apparent diminished classroom engagement indicated among band members is that these students prefer the intense, active conditions and experiential learning opportunities prevalent in the marching band rehearsal and performance settings. Under these conditions, feedback from, and engagement with, instructors and peers is immediate and constant. By comparison, the same students may find the traditional lecture hall format in most classroom settings less dynamic and engaging. If this is the case, their commitment to classroom tasks and assignments may be diminished. This model appears to be consistent with Astin's (1993) theory that many students thrive while making important physical and psychological investments in structured and purposeful out-of-class offerings.

Interestingly, regardless of the reason for the band students' limited classroom engagement, the net effects on academic performance appear to be minimal as both band and non-band students achieved comparable self-reported grades. Given the predictive power of the higher ACT/SAT scores for band students, as well as research indicating a correlation between student

engagement and academic performance (Kuh, Kinzie, Cruce, Shoup, & Gonyea, 2007), one might reasonably conclude that college marching band members should earn higher grades than their non-band peers. However, research suggests that students who devote between six and 20 hours for co-curricular activities, as often required for participation in the college marching band, earn slightly lower grades (.06-.07 GPA) than students who allocate five or fewer hours. The disparity is even more pronounced (.09-.11 lower GPA) for students who allocate 21 or more hours for co-curricular activities. Conversely, although not surprisingly, students who allocate comparable hours for studying earn comparably higher grades (Kuh et al., 2007). Understood in this context, the observation that band and non-band students reported receiving comparable grades is perhaps not surprising.

The ability of band students to perform similarly to non-band students despite lower engagement in the classroom may reflect better pre-college academic preparation among band students, as evident in their higher standardized test scores. However, for a more accurate and comprehensive comparison of academic achievement between band and non-band students, a review of full grade reports by major among graduating seniors should be considered.

Beyond the curricular realm, band students appear to be more engaged than their non-band peers along a number of co-curricular, interpersonal, and cultural enrichment measures. Band members were more likely than their non-band peers to work with faculty members outside of class, participate in a community-based project for a course, tutor other students, engage with students of varying races and values, try to better understand someone else's views from the other's perspective, and learn something that changed the way they understand a topic or issue. In addition, band members were more likely than non-band students to perceive a greater institutional emphasis on attending campus events, understanding people of different racial or

ethnic backgrounds, voting in state and federal elections, contributing to the welfare of their community, and solving complex real-world problems. Responses to these items seem to indicate that band students are more inclined to engage with others in meaningful ways outside of the traditional classroom setting. The pattern of purposeful engagement indicated among band members within the campus and broader community may not be attributable solely to participation in the college marching band, but it does reflect a value system that is consistent with the philosophy of a college education.

The observations and correlations in the co-curricular involvement indicated by band students appear to be consistent with Astin's (1993) assessment of what matters most in college. According to Astin, the ability of students to form meaningful and productive relationships with peers and faculty members is critical to the students' growth. Many of the most important opportunities for student engagement occur outside the classroom, where peer influences can, under the watchful eye of caring and attentive mentors, lead to significant and perhaps unparalleled cognitive and interpersonal development.

Although the evaluation of student satisfaction was not identified as a primary objective of the study, the factor analysis identified a related scale containing items reflecting the quality of students' relationships with peers and faculty members, perceptions of their entire educational experience, as well as their likelihood of attending the same institution if beginning anew. On each of the individual items, and on the scale as a whole, band students were significantly more satisfied with their college experiences than their non-band peers. This finding is consistent with previous research indicating that students who develop important thinking, organizational, and interpersonal skills through out-of-class experiences (Kuh, 1995) and use their abilities and

talents in shared experiences (Holland, 1997) are more satisfied with their college experiences and more likely to persist to graduation (Tinto, 1993).

In addition, a sense of shared values and community, like that fostered among band members, has been shown to further facilitate a deeper social integration and overall student satisfaction (Braxton et al., 2004). Although the college marching band experience may not be the primary reason for the favorable satisfaction expressed by the band students, it is possible that the band experience provides participants with the types of opportunities for community engagement, collaborative achievement, and school spirit that can cultivate strong relationships and promote a greater sense of connection and purpose within the broader campus environment. The types of students who join the college band may also be particularly receptive to, and well-suited for, the rich and satisfying experiences afforded to participants.

In addressing the principal research questions for this study, several key findings were made. First, band students were more engaged with diversity than their non-band peers. For the purpose of this evaluation, diversity was defined along racial and ethnic lines as well as religious beliefs, political opinions, and personal values. The degree of engagement was determined as a reflection of the frequency of conversations students indicated with others who differed along these lines. Although the items in this scale did not capture socioeconomic diversity, this variable is correlated with first generation status, which was considered in the subsequent regression analyses.

Increased engagement with diversity among band students held for both first-year students and seniors. Even after controlling for pre-college and co-existing characteristics through regression analyses, participation in the college marching band remained a significant positive predictor for a student's engagement with diversity. Although senior band and non-band

students did not indicate greater engagement with diversity than their first-year peers, it is important to note that first-year band students indicated greater engagement with diversity than both first-year and *senior* non-band students.

It remains unclear whether band participation facilitated the increased engagement with diversity among band students or whether the more highly engaged students self-selected themselves into the marching band, but it seems entirely plausible that the intense interactions afforded members of the college marching band may facilitate a level of engagement unavailable elsewhere in the undergraduate experience. Initially, these students may have had little in common other than a desire to participate in the band. The more than 200 hours they share in a single semester are equivalent to a full course load, and much of that time is spent building consensus among disparate peers in order to create a single, uniform, and cohesive product. In addition, most of these students are living away from home for the first time, and the many late night conversations and band travel requirements provide additional opportunities for meaningful interactions with diverse peers as the students jockey for position, forge alliances to "fit in," and strive for a sense of security amid a sea of unknowns. These distinctions suggest that band students may be immersed in a developmental and educational framework that is potentially more conducive to meaningful peer engagement than their non-band peers.

Much has been made in this study about the role of engagement with diversity as a defining aspect of the college marching band experience and a crucial catalyst for student growth. A central and recurring question is whether the band students may benefit from a "forced affiliation" with compositional diversity rather than self-selected or freely chosen relationships with diverse peers. Although this is a valid point for discussion, it presumes that forced affiliation automatically results in greater engagement among people from different races or

ethnicities. If this were the case, one would reasonably expect to find greater engagement with diversity among student athletes, particularly among NCAA Division-I revenue-generating sports where there is often a disproportionately high percentage of African American students (Harper et al., 2013). However, the results of this study found no such correlation between student athletes and the general undergraduate students. In fact, student athlete status did not enter any of the regression models with any predictive power for engagement with diversity.

The resultant data on band students' engagement with diversity suggest that the framework of the college marching band may be well-suited for the formation of critical relationships among disparate people based upon a shared vision and educationally purposeful objectives. The cultivation of these relationships is central to the core educational mission of the university. As Chambliss and Takacs (2014) observed, relationships "raise or suppress the motivation to learn; a good college fosters the relationships that lead to motivation" (p. 155). In addition, the particular "human aggregate model" afforded to students in the marching band may provide an important forum for the formation of a more diverse and inclusive environment to meet the educational and developmental requirements of underrepresented students (Strange & Banning, 2015). Perhaps most importantly, the engagement with diversity indicated by marching band members provides an essential model for the rest of the campus community. According to Denson & Chang (2009), the entire campus culture can benefit when students see their peers engaging collaboratively and cooperatively with diversity. Over time, sustained engagement with diversity may lead to fundamental changes in the core belief systems of the participants.

On constructs related to higher order learning and reflective learning, the results were somewhat mixed. There was no observed difference between all band and non-band students on the independent smaples *t*-test for the high order learning scale. However, it is important to note

that the items in the higher order learning scale asked students to indicate the extent to which their *coursework* emphasized a range of mental activities. Considering the band students indicated lower engagement on an array of items related to classroom behavior, it is perhaps less surprising that they did not differ from non-band students on related items in the higher order learning scale. Nevertheless, both band and non-band senior students did indicate greater engagement on the higher order learning scale than their first-year peers, reflecting the type of growth one would expect to see for all students over the course of an undergraduate education.

On the reflective learning scale, band students indicated greater engagement than their non-band peers. Items in the reflective learning scale are particularly relevant because they represent some of the most essential learning objectives of a college education: examining the strengths and weaknesses of your view on a topic or issue, trying to better understand someone else's views by imagining how an issue looks from his or her perspective, and learning something that changes the way you understand a topic or issue. In many ways, these items reflect the core values and priorities of a higher education including an emphasis on the developmental transformation of students rather than the mere memorization of information.

Although senior band members did not indicate greater reflective learning than their first-year band peers, band seniors and first-year members did indicate greater reflective learning than their respective non-band peers. In addition, first-year band students indicated greater reflective learning than both first-year and *senior* non-band students. Regardless of the sources of the observed differences in reflective learning indicated among band students, the cultivation of these qualities through a collaborative and educationally purposeful pursuit may play an important role in enabling students to become more cooperative and sympathetic world citizens.

Perhaps most importantly, considering the primary objectives of a higher education, students who participated in the college marching band indicated higher levels of personal social responsibility than their non-band peers. Items in this scale included a range of desirable behaviors associated with responsible citizenship including: understanding people of other racial and ethnic backgrounds, developing a personal code of ethics, learning effectively on your own, understanding yourself, voting in local and national elections, contributing to the welfare of your community, and solving complex real-world problems. Although no significant difference was observed between first-year and senior band students on the personal social responsibility scale, as with the engagement with diversity and reflective learning scales, the level of personal social responsibility indicated among first-year band students was greater than that of both first-year and *senior* non-band students.

Understood collectively, greater engagement on the items in the personal social responsibility scale may facilitate the achievement of a core objective in higher education: the preparation of young women and men for lives as responsible and engaged citizens in an increasingly diverse democracy. As with sustained engagement with diversity, repeated patterns of personal social responsibility may fundamentally change the core beliefs and values of the participants. Whether the observed differences between band and non-band students are partly attributable to band participation or to some other range of factors is unclear, but the data suggest that students who do participate in the college marching band are more likely to indicate these characteristics than their non-band peers. Most notably, according to the results of the regression analysis, marching band participation remained the strongest predictor of a student's personal social responsibility among all variables identified for this study.

When interpreting these results, it is important to consider the effect sizes (Cohen's *d*) for the independent samples *t*-test comparisons on each construct. These values, reflecting the strength of the relationship between variables, ranged from 0.05 for higher order learning to a more moderate 0.44 for first-year students' personal social responsibility. Although, none of the effect sizes for the *t*-test comparisons in the study could be considered large according to Cohen's (1992) framework, the nearly half unit of standard deviation for the personal social responsibility scale suggests an important finding. In addition, despite the consideration of a range of pre-college and co-existing characteristics, the variables identified and evaluated in the regression analyses do not capture all of the factors that influence the observed outcomes. With R^2 values ranging from .06 to .11 in the regression analyses, 89% to 94% of the variance in the samples was not captured by the variables identified for this study.

Despite these limitations, the regression analyses were useful in identifying some of the characteristics and experiences that influence student engagement across the target constructs. Membership in a fraternity or sorority, for example, was negatively associated with engagement with diversity, which is not particularly surprising when one considers the relative racial and philosophical homogeneity inherent in many of these organizations. ACT/SAT score, a humanities major, and student of color status, on the other hand, were all positively associated with engagement with diversity, suggesting that more highly-educated students, students with broad academic interests, and non-white students are more likely to engage with others who do not share their ethnicity or ideology.

Status as an international student was negatively associated with gains in higher order learning, perhaps due in part to language or cultural barriers or some other restrictions to classroom engagement. Conversely, the completion of, or intention to complete, an internship

was positively associated with higher order learning, suggesting that these offerings may effectively meet their objective in augmenting classroom instruction. The positive association between a humanities major and the reflective learning scale might reasonably be interpreted as an affirmation of a broad, classical education.

Two of the more relevant findings concerned standardized test scores and student athlete status. First, with regard to standardized test scores, greater performance on the ACT/SAT was *negatively* associated with personal social responsibility. It is unclear why apparently better-educated students would be *less* likely to engage with diverse peers along racial, ethnic, political, ideological, and religious lines, but it seems conceivable that an increased focus on academic or classroom engagement may inhibit broader community engagement. And yet, despite this negative association, band members earned higher ACT/SAT scores *and* indicated greater personal social responsibility, which only underscores the magnitude of the personal social responsibility characteristics identified among band students.

Secondly, and perhaps most surprisingly considering the large amount of time shared in an intensely collaborative pursuit, student athlete status was not positively (or negatively) associated with any of the target scales identified for this study. This is a critically important distinction for those who assume that student athlete status and marching band participation may facilitate similar outcomes based upon their similar engagement profiles and time requirements. These offerings are very different, their participants are different, and their outcomes are different, too.

Among the recurring co-existing student variables positively associated with gains on all four target scales for this study were participation in a learning community, volunteer work, and research with faculty. All of these offerings have been identified by the Association of American Colleges and Universities as “high impact educational practices” that can promote greater

engagement among students of varying backgrounds (Kuh, 2008). Similarly, participation in the college marching band was also consistently associated with gains in the target scales. This finding seems to support the theory that the core tenets and outcomes associated with marching band participation may be similar to those of other well-established engagement offerings.

It is illuminating that band membership, volunteer work, and participation in a learning community were the three most powerful predictors of personal social responsibility according to the regression analysis for first-year and senior students. The fact that band membership was identified as a more powerful predictor of personal social responsibility than volunteer work and membership in a learning community, two widely-celebrated priorities in higher education (Bringle & Hatcher, 1996; Lenning & Ebbers, 1999), suggests that the conditions for marching band participation may be at least comparable in facilitating some of the same fundamental outcomes of a higher education.

Although one might reasonably hope to see substantial growth between first-year and senior students at the undergraduate level, there may be some latent variables that inhibit development in some cases. The widespread fragmentation of students on college campuses according to racial and cultural characteristics, for example, may have a detrimental effect on their natural inclination to engage with diverse peers as well as their ability to grow through engagement. This may explain, in part, the observation that senior band students' scores on the diversity, reflective learning, and personal social scales did not differ significantly from those of the first-year band students. It may also be that there are limits to the amount or degree of engagement students can reasonably indicate on the target constructs identified in this study.

In addition, considering the intensive introduction to the college band experience for all first-year band members during the preseason camp, it is not unlikely that these students could

develop much of their capacity for these target constructs during their first year in the band. Research on similarly structured learning communities has shown that the benefits of first-year participation can remain through senior year (Zhao & Kuh, 2004). The fact that first-year band students already indicate such high levels of engagement in comparison to their non-band peers may make additional growth toward senior year difficult. Regardless of these distinctions, the pervasive differences between band and non-band students suggest that there may be something distinctive and valuable about the band students or the band experience.

Beyond the role of student engagement theory in illuminating some of the differences between band and non-band members, the role of music participation must be considered as an equally important factor. Music participation is a distinctive aspect of a well-rounded education. In addition to the development of important cooperative behaviors through ensemble music participation (Kokatski & Hallam, 2007) and a greater appreciation of differences (Dagaz, 2010), music participation has been associated with the cultivation of a range of intellectual, personal, and social skills (Hallam, 2010).

In many ways, the educational approach employed by many college marching bands mirrors and augments the basic philosophical approach promoted in the student engagement literature. Diverse participants are brought together in a shared pursuit requiring collaboration, cooperation, perseverance, attention to detail, concern for others, and an over-arching commitment to shared objectives. Successful ensemble music experiences require participants to forego individual needs in order to realize the goals of the group. In doing so, participants learn to see the value of patience and sacrifice as essential components in a vibrant and healthy community.

When evaluating the degree to which band participation may be responsible for any observed differences between the band and non-band students, it is important to consider the distinctive

participation requirements for all band members. Each college marching band season begins with an intensive one- to two-week preseason camp, during which the students learn to work together under grueling conditions for as many as ten hours per day. These students may be drawn together by their love of music as well as their interest in being part of a group or a team. For the most part, they join the college band and commit to the substantial responsibilities in relative anonymity without expectation of academic recognition or scholarships. Participation in the band requires great personal sacrifice, but the rewards appear to be worth the investment.

A new and powerful interdependency is fostered among band members as they begin to trust and rely upon each other in order to achieve mutual objectives. Their relationships are further developed as the bands transition into the academic year and through a range of additional rehearsal and high-profile performance requirements both on and off campus. The student participants may or may not share racial, cultural, political, ideological, or religious backgrounds, but they do share a common purpose, and this may be a key component in fostering collaborative growth. The playing field is, quite literally, level for all of the band members as each has an equally important role to play. It is an egalitarian model. Amid the distinctive conditions associated with participation in the college marching band, vital relationships are formed and strengthened.

The cultivation of these diverse relationships is a central tenet of the marching band experience and an important prerequisite to any subsequent growth. As Gergen (1991, 1999) observed, students may be defined by their relationships with others, and it is through these relationships that students are able to create systems of meaning. In the process of constructing and sharing these relationships within the broader campus community, fundamental beliefs may be changed as growth and development are achieved. The high profile nature of the college

marching band experience makes it an ideal vehicle for modeling patterns of engagement that may encourage and inspire others both on campus and within the broader society.

Done well, participation in the college marching band provides students with valuable opportunities to know themselves and others through active participation in a challenging and worthwhile endeavor that can shape patterns of engagement well beyond the college years. This emphasis on the process of active learning as well as the related long-term objectives and benefits is a central tenet in the philosophies of both Dewey (1934) and Astin (1993). The worthy educational challenges associated with band participation may ultimately move students from a fixed orientation to a growth orientation and enable them to experience what Dweck (2000) refers to as a love of the learning process. Over time, the students may begin to see the benefits of working through adversity and making individual sacrifices to help others within the broader community. As Aristotle observed, "a person comes to be just from doing just actions" (Aristotle, as cited in *Nicomachean Ethics*, p. 26). The college marching band provides students with valuable opportunities to work cooperatively to overcome obstacles, strengthen their resolve, and remain steadfast in pursuing noble objectives.

As a veteran marching band director, these findings are consistent with my observation that college marching band students care deeply and genuinely about their work and their fellow band members. They display grit, tenacity, and resolve in fulfilling their respective responsibilities to improve the quality of the group. Over the course of a shared season, many students will prioritize their membership in the band above their own interests and needs. In the process, they learn the value of making individual sacrifices in order to create a more cohesive and equitable whole. The generous and selfless actions and interactions of these students can and should serve as a model for the entire university community.

It would be impossible to isolate and evaluate all the cooperative and confounding variables that may contribute to the engagement characteristics indicated by college marching band students. Certainly, previous experience in other collaborative pursuits, including high school band, play a role, but the conditions of the college marching band are distinctive and perfectly timed to coincide with developmental and environmental characteristics that, according to Kegan (1994) and Pascarella and Terenzini (2005), can have profound implications for student growth and development. Beyond the musical growth and development afforded to student participants, the college marching band structure is designed to bring different people together in a shared pursuit requiring a sustained commitment to cooperation, collaboration, flexibility, sacrifice, and achievement. These conditions may not be unique to the college marching band, but they are essential for the types of growth we seek in all of our students.

Toward Student Integration

If we accept engagement with diversity as an important condition for cognitive complexity and student growth, and we embrace our primary responsibility as educators to produce thoughtful, responsible, and engaged citizens, then higher education must do more to provide students with valuable opportunities to interact with diverse peers during the undergraduate years to foster cognitive growth and begin to prepare them for success beyond college. Students who choose to actively engage with others in collaborative, challenging, meaningful, and educationally purposeful pursuits may ultimately experience an authentic integration within the broader community as thoughtful and responsible citizens (Gurin, Nagda, & Lopez, 2004).

The concept of exposure to diversity is not limited to racial diversity but includes the full spectrum of diversity from ethic and cultural to gender to socioeconomic to political and

ideological. It includes diversity of thought, opinions, interests, ambitions, and values. Colleges and universities should strive to create environments with sufficient diversity to facilitate interaction, debate, discussion, and subsequent growth among students, but exposure alone is not adequate to ensure that students will choose to engage with each other in thoughtful and meaningful ways. These institutions should also encourage students to seek difficult challenges and participate in structured opportunities for collaborative and meaningful achievement where their differences are not just tolerated but explored, understood, appreciated, and celebrated.

Students who choose to engage with diverse peers arrive at the threshold of growth, but the types and degrees of engagement vary considerably and so, too, do the types and degrees of growth that may be achieved. The well-structured college marching band can provide an ideal laboratory for the cultivation of a broad spectrum of student engagement. Every student who joins the college band quickly realizes that individual success is contingent upon the success of others, and it is in the best interest of all participants to work through challenges cooperatively and place the group performance objectives above the unique predispositions and tendencies of the individual participants. Every member must learn to be selfless in the cause and not allow personal artistic biases to obscure or obstruct the mission of the whole. In doing so, the successful musician develops a powerful sense of responsibility to others. The conditions for participation, both in terms of time and intensity, are demanding, but collaborative engagement and achievement are nurtured and reinforced at every turn, and the resultant student growth can be substantial.

The value and importance of student engagement during the undergraduate years must be understood contextually not as an end in and of itself but a means to a more fundamental objective of higher education: student *integration* - the integration of people, cultures,

philosophies, ideas, and, ultimately, the integration of a society. By encouraging students to make positive contributions to the vibrant culture of an institution of higher education, we are enabling them to form critical belief systems and preparing them to continue to make positive contributions to the culture of the broader society upon graduation.

Unstructured collaboration among diverse peers may constitute engagement, but its benefit may be minimal. Students require deeper, more intense, more meaningful, and more sustained levels of engagement in order to facilitate greater development and an authentic integration. Students who are provided with opportunities for deeper and more sustained collaborative achievement learn to depend fully upon each other. They see the commonalities in their differences because they share the same goals and ambitions. They understand that collaborative success is always greater than singular success, and they actively support each other because it is in their best interest to do so.

The results of this study suggest that the college marching band experience is associated with a range of conditions that may provide students with essential opportunities for intense, collaborative, and meaningful challenges leading to sustained growth and development. Ideally, these conditions may provide an important model within the university community to move students from *exposure* to diversity, through *engagement* with others, and toward an authentic *integration* within the broader community as thoughtful and responsible citizens.

Limitations

Although the National Survey of Student Engagement is widely administered at colleges and universities throughout the United States, some questions have been raised about the validity of self-reporting instruments (Aaker, Kumar, & Day, 1998; Pace, 1985; Pike, 1999; Wentland &

Smith, 1993). Surveys may effectively capture student *perceptions* of their own behavior, but those perceptions may not always be accurate. Concerns have also been expressed about the clarity and reliability of individual items in the NSSE (Porter, 2011; Schneider, 2009), although a comprehensive evaluation of NSSE benchmarks found that the resultant scores are valid proxy measures for cited outcomes (Pascarella et al., 2010).

Because the NSSE is administered to first-year students during the spring semester, no baseline (pre-college) data were available for any participants. As such, the baseline first-year band and non-band student scores reflected gains made during the first semester of college. The potential pool of marching band participants for this study was limited to the institutions for which NSSE data were available from the previous year's national administration of the NSSE, spring of 2012. Data for the marching band members were collected at the end of the fall semester in the same calendar year to allow for a comparable degree of student development to occur as a result of participation in the marching band.

Participating directors were asked to administer the surveys during a designated rehearsal to increase student participation and facilitate higher response rates. However, in many cases, logistical challenges including laptop and/or internet access prohibited this process. In these scenarios, students were provided with a link to the online survey and asked to complete the survey on their own computers at a different time. It is important to note that the wide range in response rates among participating bands may have resulted in some aspects of diversity being disproportionately represented in the overall band sample. In particular, bands with lower response rates might not have representative samples. Nevertheless, the mean band member response rate (38%) compared favorably to the mean NSSE response rate (32%).

Because the NSSE Institute does not provide datasets for individual colleges and universities, an aggregate dataset of non-band responses composed of a 20% sample of the corresponding institutions was used for comparative purposes between the band and non-band samples. This enabled broad distinctions between the two groups, but it did not allow for specific comparisons between band and non-band students at each individual institution.

In order to identify changes in patterns of student responses over time, the NSSE is administered to freshmen and seniors at participating institutions during the second semester of a designated academic year, and comparisons are made between the two samples. As such, data are not typically collected for sophomores and juniors at the participating institutions. For the purposes of this research study, because participating institutions and sample sizes are limited, data were collected for all marching band participants including first-year students, sophomores, juniors, and seniors. This strategy produced a larger sample size for overall comparisons between band and non-band students, but comparisons between first-year and senior band members were made from a smaller pool.

Because the survey responses were collected in a single academic year, comparisons between first-year and senior band members were used as a proxy for growth rather than the actual assessment of growth that might have been obtained in a longitudinal study. However, even conclusions about this proxy for growth were limited because the data collection from first-year band members occurred after the fall marching band season when many of the benefits of marching band participation had already occurred.

In addition, although band and non-band students indicated comparable grades, a more accurate assessment of academic achievement during college could be obtained through a comparison of final grades of graduating seniors by major. Similarly, because students who

indicated the completion of, as well as the intention to complete, co-existing high impact educational practices were grouped together in the regression analyses, it is possible that some of the students expressing an "intention" to complete one of these offerings never actually fulfilled that intention. A longitudinal evaluation taking into account final student records would be useful in capturing a more comprehensive and accurate assessment of the growth that may occur as a result of participation in the college band as well as other college offerings.

Lastly, although the NSSE briefly addresses racial, cultural, political, and ideological diversity, it does not include items related to socioeconomic diversity. Socioeconomic diversity is an important and compelling form of diversity, but it is not typically acknowledged or addressed as commonly as racial diversity (Kahlenberg, 2004). Because conclusions about engagement with diversity in this study were limited to the racial/cultural and political/ideological items presented by NSSE, conclusions about engagement with socioeconomic diversity were inherently limited.

Future Research

The results of this study suggest that students who participate in the college marching band indicate greater engagement with diversity, reflective learning, and personal social responsibility than their non-band peers. Regression analyses were conducted to estimate the effect of pre-college and co-existing student characteristics, but any follow-up study should include a pre-college survey to capture student responses prior to any marching band influence.

In order to more precisely isolate and evaluate the specific role of music participation on the observed outcomes in the study, an assessment of the culture of college marching bands within the broader campus community would be helpful. In addition, a comparable review of

traditional music ensembles including wind bands, orchestras, and jazz bands would be illuminating. Similar evaluations could be conducted of other traditional college offerings including a range of student clubs and organizations.

Given the widespread interest in leadership programs on today's college campuses, analyses should be conducted to determine if these offerings facilitate similar outcomes. In addition, an evaluation of racial, ethnic, and cultural student groups would confirm whether these organizations facilitate or inhibit engagement with diversity and additional growth.

Lastly, a longitudinal evaluation of students, as well as graduates who have been out in the workforce for a number of years, would determine whether the engagement characteristics associated with college marching band participation are sustained beyond graduation.

Conclusion

Higher education must acknowledge and embrace its role and responsibility in preparing students for meaningful and sustained engagement as thoughtful and responsible citizens in an increasingly diverse democracy. Our nation and the world require these skills from our graduates. Previous research utilizing NSSE data has not sought to evaluate the potential related impact of participation in one of the largest and most visible student organizations on campus: the college marching band. The results of this study suggest that students who participate in the college marching band are more likely than their non-band peers to indicate a range of beneficial engagement characteristics with important implications for the broader society.

Participants in the college marching band indicate greater engagement with racial, ethnic, political, religious, and ideological diversity than their non-band peers. They are more reflective in their learning as evident in their willingness to imagine another's perspective and reevaluate

their own views, and they indicate greater personal social responsibility along a range of desirable vectors including: understanding people of other racial and ethnic backgrounds, developing a personal code of values and ethics, learning effectively on their own, understanding themselves, voting in local or national elections, contributing to the welfare of their community, and solving complex real-world problems. In the case of the personal social responsibility, participation in the college marching band was the single strongest predictor of these attributes even after controlling for a range of pre-college and co-existing characteristics.

Although it remains unclear whether band students indicate these behaviors as a result of their participation in the band or some other set of variables, the net result is the same: students in the college marching band indicate greater proficiency on a range of desirable measures than their non-band peers and, perhaps most importantly, these patterns of meaningful engagement may continue to yield important benefits for the students and the broader society in the years beyond graduation.

The pervasive engagement characteristics associated with participation in the college marching band are not peripheral to a college education - they are central to a college education, and the structure of the college marching band should be further evaluated as a potential model for the cultivation of these skills and abilities within the university system. If we are truly committed to the integration of our students as advocates for equality and responsibility within our communities, we must vigorously support programs that cultivate these skills. The results of this study suggest that participation in the college marching band is distinctly and strongly associated with these fundamental objectives and outcomes.

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Appendix A: Additional Tables

Table 5
Marching band survey participation

Institution	Band Size	Response Rate (%)
Auburn University	378	37.6
Boise State University	150	20.7
Clemson University	260	95.8
Indiana University, Bloomington	245	44.9
Mississippi State University	331	14.2
Northern Illinois University	150	20.7
Syracuse University	190	30.0
University of Arizona	250	49.6
University of Georgia	450	24.9
University of Houston	269	58.0
University of Illinois, Urbana-Champaign	339	29.2
University of Kentucky	214	25.7
University of Louisiana, Lafayette	180	16.7
University of Louisville	165	16.4
University of Miami	200	47.5
University of Missouri	300	33.0
University of Oregon	200	63.0
University of South Carolina, Columbia	325	33.5
University of Wyoming	172	69.2
Western Kentucky University	190	33.2
Other/Undeclared	NA	<.01
Overall	**4,958**	**38.0**

Table 6
Years previous marching band experience (n=1,843)

Years Marching Experience	**First-Years (*n*=673)**	**Sophomores (*n*=478)**	**Juniors (*n*=367)**	**Seniors (*n*=325)**
1	6.8%	3.3%	2.5%	1.2%
2	1.8%	9.0%	3.3%	1.2%
3	3.3%	2.9%	9.0%	3.1%
4	18.9%	4.8%	3.3%	8.0%
5	55.7%	14.4%	4.4%	3.7%
6	7.7%	47.1%	15.0%	5.8%
7	2.8%	10.7%	46.0%	12.6%
8	2.2%	6.3%	9.0%	41.5%
9	0.6%	0.8%	4.6%	9.5%
10 or more	0.1%	0.6%	3.0%	13.2%
Overall	**36.5%**	**26.0%**	**19.9%**	**17.6%**

Table 9
Gender distribution of selected marching bands (n=2,321)

Marching Band	Female (*n*=1,105)	Male (*n*=1,216)
Auburn University (n=378)	46.8%	53.2%
Indiana University (n=245)	51.4%	48.6%
Mississippi State University (n=331)	43.2%	56.8%
Syracuse University (n=190)	50.5%	49.5%
University of Houston (n=269)	41.3%	58.7%
University of Illinois (n=339)	48.1%	51.9%
University of Kentucky (n=214)	51.9%	48.1%
University of Louisville (n=165)	46.7%	53.3%
Western Kentucky University (n=190)	53.2%	46.8%
Total	**47.6%**	**52.4%**

Table 11
Highest level of education attained by parents

Parent	Band (*n*)	Band Mean	Band *SD*	Non-Band (*n*)	Non-Band Mean	Non-Band *SD*	Sig. (2-tailed)
Mother	1599	4.42	1.48	5138	4.12	1.61	**
Father	1595	4.41	1.66	5123	4.17	1.77	**

Note. Rating scale: 1=Did not finish high school; 2=Graduated from high school; 3=Attended college but did not graduate; 4=completed an associate's degree; 5=Completed a bachelor's degree; 6=Completed a master's degree; 8=completed a doctoral degree ** $p<.01$

Table 12
ACT and converted SAT independent samples t-test

Band (*n*)	**Band Mean**	**Band *SD***	**Non-Band (*n*)**	**Non-Band Mean**	**Non-Band *SD***	***t***	***df***	**Sig. (2-tailed)**
1281	27.72	4.14	3951	25.61	4.29	15.43	5230	**

Note. SAT scores converted to ACT equivalent ranging from 1-36. Equal variances assumed.
** $p<.01$

Table 13
Academic majors of survey respondents

Major	**Band (*n*=1,863)**	**Non-Band (*n*=5,167)**
Humanities	23.6%	25.1%
Science/Engineering	24.7%	26.1%
Business	6.7%	14.5%
Education	14.6%	6.0%
Music/Music Education	15.2%	1.4%
Professional/Other	14.3%	25.3%
Undecided	0.9%	1.6%

Table 14
Student Characteristics

Type	**Band (*n*)**	**Band Mean**	**Band *SD***	**Non-Band (*n*)**	**Non-Band Mean**	**Non-Band *SD***	**Chi-Square Sig.**
First Generation	1602	0.28	0.45	5144	0.34	0.47	**
Foreign Language	1735	0.63	0.48	5401	0.57	0.50	**
Study Abroad	1734	0.41	0.49	5382	0.38	0.49	ns
Internship	1733	0.85	0.36	5408	0.83	0.38	*
Research with Faculty	1732	0.46	0.50	5393	0.42	0.49	**
Volunteer Work	1734	0.83	0.38	5376	0.83	0.37	ns
Learning Community	1734	0.43	0.49	5362	0.37	0.48	**
Fraternity/Sorority	1601	0.15	0.35	5170	0.17	0.37	*
Sponsored Athlete	1602	0.07	0.26	5166	0.03	0.17	**

Note. Mean values binary scale: 0=no, 1=yes; ** $p<.01$; * $p<.05$; ns = not significant

Table 16
Curricular Engagement

Item	Band (*n*)	Band Mean	Band *SD*	Non-Band (*n*)	Non-Band Mean	Non-Band *SD*	Sig. (2-tailed)
Ask questions in class or contribute to class discussions	1866	2.78	0.87	6049	2.85	0.87	**
Work with classmates outside of class to prepare class assignments	1854	2.57	0.93	6075	2.72	0.91	**
Put together ideas or concepts from different courses when completing assignments or during class discussions	1855	2.62	0.91	5711	2.82	0.84	**
Include diverse perspectives in class discussions or assignments	1857	2.59	1.01	6027	2.74	0.93	**
Work on a paper or project that required integrating ideas or information from various sources	1860	2.83	1.00	6044	3.18	0.79	**
Prepare two or more drafts of a paper before turning it in	1861	2.10	1.02	6019	2.45	0.97	**
Discuss ideas from readings or classes with others outside of class	1855	2.60	0.91	5594	2.80	0.88	**
Work harder than you thought you could to meet an instructor's standards or expectations	1857	2.63	0.91	5615	2.72	0.85	**
Discuss grades or assignments with an instructor	1859	2.59	0.95	5705	2.70	0.90	**

Note. Rating scale: 1=*Never*; 2=*Sometimes*; 3=*Often*; 4=*Very often*. ** $p<.01$

Table 17
Extracurricular Engagement

Item	Band (*n*)	Band Mean	Band *SD*	Non-Band (*n*)	Non-Band Mean	Non-Band *SD*	Sig. (2-tailed)
Participating in co-curricular activities	1687	3.57	1.74	5365	2.44	1.59	**
Relaxing and socializing	1689	3.78	1.64	5330	3.67	1.54	*
Providing care for dependents living with you	1695	1.33	1.04	5328	1.71	1.70	**
Working for pay on campus	1697	1.65	1.37	5343	1.75	1.51	*
Working for pay off campus	1692	1.59	1.40	5341	2.27	2.13	**
Preparing for class	1694	4.22	1.70	5360	4.49	1.72	**

Note. Rating scale in hours: 1=*0*; 2=*1-5*; 3=*6-10*; 4=*11-15*; 5=*16-20*; 6=*21-25*; 7=*26-30*; 8=*More than 30*. ** $p<.01$; * $p<.05$

Table 18
Perceived institutional emphasis and contributions

Item	Band (*n*)	Band Mean	Band *SD*	Non-Band (*n*)	Non-Band Mean	Non-Band *SD*	Sig. (2-tailed)
Attending campus events and activities (special speakers, cultural performances, athletic events, etc.)	1688	3.20	0.82	5279	2.88	0.91	**
Encouraging contact among students from different economic, social, and racial or ethnic backgrounds	1688	2.91	0.95	5283	2.64	0.98	**
Understanding people of other racial and ethnic backgrounds	1601	2.86	0.92	5122	2.68	0.96	**
Understanding yourself	1600	3.05	0.91	5108	2.85	0.97	**
Voting in local, state (provincial), or national (federal) elections	1603	2.62	1.05	5125	1.97	1.01	**
Contributing to the welfare of your community	1603	2.78	0.92	5112	2.53	0.99	**
Developing a personal code of values and ethics	1603	2.98	0.93	5119	2.74	1.01	**
Learning effectively on your own	1605	3.18	0.80	5115	3.05	0.86	**
Solving complex real-world problems	1604	2.96	0.88	5121	2.83	0.92	**

Note. Rating scale: 1=*Very little*; 2=*Some*; 3=*Quite a bit*; 4=*Very much*. ** $p<.01$

Table 22
Significant variables predicting all students' engagement with diversity

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
Pre-college characteristics							
ACT (& SAT conv.)	0.100	**	1	0.100	**	0.098	**
Student of Color	0.067	**	2	0.092	**	0.076	**
International Student	-0.037	**	3	-0.052	**	-0.045	**
College Characteristics							
Research with Faculty	0.156	**	4	0.141	**	0.113	**
Learning Community	0.111	**	5	0.092	**	0.073	**
Volunteer Work	0.106	**	6	0.072	**	0.075	**
Internship	0.090	**	7	0.044	**	0.052	**
Fraternity/Sorority	-0.033	*	8	-0.045	**	-0.037	*
Major							
Humanities	0.079	**	9	0.091	**	0.096	**
Education	0.040	**	10	0.071	**	0.045	*
Music & Music Ed.	0.067	**	11	0.040	*	0.018	ns
Band Membership	0.121	**	12	0.082	**	0.082	**

Note. 2 items required for inclusion; R^2=.077; $R^2\Delta$ due to Band Membership=.006;
** p<.01; * p<.05; ns = not significant

Table 23
Significant variables predicting all students' higher order learning

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
Pre-college characteristics							
International Student	-0.039	**	1	-0.039	*	-0.040	**
Female	0.038	**	2	0.038	*	0.038	*
ACT (& SAT conv.)	0.037	**	3	0.041	**	0.027	ns
College Characteristics							
Research with Faculty	0.159	**	4	0.162	**	0.116	**
Learning Community	0.141	**	5	0.117	**	0.097	**
Internship	0.133	**	6	0.097	**	0.083	**
Volunteer Work	0.127	**	7	0.074	**	0.075	**
Major							
Undecided	-0.042	**	8	-0.031	*	-0.030	*
Band Membership	0.045	**	9	0.034	*	0.034	*

Note. 3 of 4 items required for inclusion; R^2=.059; * $R^2\Delta$ due to Band Membership=.001; * p<.01; * p<.05; ns = not significant

Table 24
Significant variables predicting all students' reflective learning

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
Pre-college characteristics							
ACT (& SAT conv.)	0.047	**	1	0.047	**	0.031	*
Student of Color	0.023	ns	2	0.035	*	0.009	ns
College Characteristics							
Research with Faculty	0.168	**	3	0.164	**	0.133	**
Learning Community	0.130	**	4	0.106	**	0.084	**
Volunteer Work	0.115	**	5	0.083	**	0.082	**
Internship	0.089	**	6	0.040	*	0.047	**
Study Abroad	0.076	**	7	0.033	*	0.022	ns
Major							
Humanities	0.114	**	8	0.127	**	0.134	**
Education	0.046	**	9	0.080	**	0.054	**
Music & Music Ed.	0.070	**	10	0.041	*	0.021	ns
Band Membership	0.104	**	11	0.074	**	0.074	**

Note. 2 of 3 items required for inclusion; R^2=.077; $R^2\Delta$ due to Band Membership=.005; ** p<.01; * p<.05; ns = not significant

Table 25
Significant variables predicting all students' personal social responsibility

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
Pre-college characteristics							
ACT (& SAT conv.)	-0.063	**	1	-0.063	**	-0.082	**
Female	0.051	**	2	0.045	**	0.028	ns
College Characteristics							
Learning Community	0.184	**	3	0.179	**	0.126	**
Volunteer Work	0.158	**	4	0.132	**	0.122	**
Research with Faculty	0.117	**	5	0.080	**	0.085	**
Fraternity/Sorority	0.057	**	6	0.041	**	0.048	**
Internship	0.093	**	7	0.040	**	0.037	*
Major							
Science/Engineering	-0.057	**	8	-0.060	**	-0.058	**
Music & Music Ed.	0.038	**	9	0.038	*	-0.012	ns
Band Membership	0.147	**	10	0.172	**	0.172	**

Note. 5 of 7 items required for inclusion; R^2=.093; $R^2\Delta$ due to Band Membership=.025; ** p<.01; * p<.05; ns = not significant

Table 27
Significant variables predicting first-year students' engagement with diversity

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
Pre-college characteristics							
ACT (& SAT conv.)	0.113	**	1	0.113	**	0.113	**
Student of Color	0.065	**	2	0.101	**	0.065	**
College Characteristics							
Research with Faculty	0.179	**	3	0.160	**	0.127	**
Fraternity/Sorority	-0.088	**	4	-0.089	**	-0.081	**
Learning Community	0.111	**	5	0.088	**	0.068	**
Volunteer Work	0.092	**	6	0.062	**	0.069	**
Study Abroad	0.094	**	7	0.051	*	0.042	ns
Major							
Humanities	0.092	**	8	0.077	**	0.084	**
Education	0.030	ns	9	0.062	**	0.048	*
Band Membership	0.126	**	10	0.089	**	0.089	**

Note. 2 items required for inclusion; R^2=.085; $R^2\Delta$ due to Band Membership=.007;
** p<.01; * p<.05; ns = not significant

Table 28
Significant variables predicting first-year students' higher order learning

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
Pre-college characteristics							
Female	0.052	*	1	0.052	*	0.068	**
International Student	-0.050	*	2	-0.048	*	-0.054	*
College Characteristics							
Research with Faculty	0.181	**	3	0.191	**	0.140	**
Internship	0.158	**	4	0.123	**	0.113	**
Learning Community	0.155	**	5	0.108	**	0.107	**
Band Membership	0.049	*	6	0.046	*	0.046	*

Note. 3 of 4 items required for inclusion; R^2=.068; $R^2\Delta$ due to Band Membership=.002; ** p<.01; * p<.05

Table 29
Significant variables predicting first-year students' reflective learning

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
Pre-college characteristics							
ACT (& SAT conv.)	0.054	*	1	0.054	*	0.031	ns
College Characteristics							
Research with Faculty	0.225	**	2	0.222	**	0.182	**
Learning Community	0.141	**	3	0.098	**	0.077	**
Study Abroad	0.120	**	4	0.077	**	0.062	**
Fraternity/Sorority	-0.053	*	5	-0.064	**	-0.048	*
Volunteer Work	0.107	**	6	0.062	**	0.075	**
Major							
Humanities	0.121	**	7	0.104	**	0.115	**
Education	0.049	*	8	0.088	**	0.074	**
Band Membership	0.109	**	9	0.083	**	0.083	**

Note. 2 of 3 items required for inclusion; R^2=.098; $R^2\Delta$ due to Band Membership=.006; ** p<.01; * p<.05; ns = not significant

Table 30
Significant variables predicting first-year students' personal social responsibility

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
Pre-college characteristics							
ACT (& SAT conv.)	-0.066	**	1	-0.066	**	-0.103	**
College Characteristics							
Learning Community	0.202	**	2	0.197	**	0.136	**
Volunteer Work	0.131	**	3	0.107	**	0.104	**
Research with Faculty	0.147	**	4	0.099	**	0.092	**
Internship	0.112	**	5	0.059	*	0.058	*
Major							
Music & Music Ed.	0.041	*	6	0.053	*	0.002	ns
Business	0.041	*	7	0.052	*	0.064	**
Band Membership	0.181	**	8	0.206	**	0.206	**

Note. 5 of 7 items required for inclusion; R^2=.108; $R^2\Delta$ due to Band Membership=.037; ** p<.01; * p<.05; ns = not significant

Table 31
Significant variables predicting senior students' engagement with diversity

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
Pre-college characteristics							
Student of Color	0.071	**	1	0.071	**	0.078	**
ACT (& SAT conv.)	0.065	**	2	0.082	**	0.080	**
International Student	-0.036		3	-0.057	*	-0.044	ns
College Characteristics							
Learning Community	0.132	**	4	0.132	**	0.108	**
Volunteer Work	0.132	**	5	0.108	**	0.106	**
Research with Faculty	0.129	**	6	0.098	**	0.105	**
Major							
Humanities	0.076	**	7	0.091	**	0.089	**
Music & Music Ed.	0.058	**	8	0.064	**	0.064	**

Note. 2 items required for inclusion; R^2=.065; ** p<.01; * p<.05; ns = not significant

Table 32
Significant variables predicting senior students' higher order learning

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
Pre-college characteristics							
International Student	-0.056	*	1	-0.056	*	-0.052	*
ACT (& SAT conv.)	0.050	*	2	0.050	*	0.052	*
Female	0.046	*	3	0.049	*	0.031	ns
College Characteristics							
Learning Community	0.143	**	4	0.143	**	0.100	**
Volunteer Work	0.147	**	5	0.122	**	0.104	**
Research with Faculty	0.139	**	6	0.114	**	0.106	**
Internship	0.120	**	7	0.073	**	0.073	**

Note. 3 of 4 items required for inclusion; R^2=.060; ** p<.01; * p<.05; ns = not significant

Table 33
Significant variables predicting senior students' reflective learning

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
Pre-college characteristics							
College Characteristics							
Volunteer Work	0.126	**	1	0.126	**	0.108	**
Research with Faculty	0.125	**	2	0.110	**	0.101	**
Learning Community	0.120	**	3	0.095	**	0.100	**
Major							
Humanities	0.111	**	4	0.128	**	0.125	**
Band Membership	0.069	**	5	0.057	*	0.057	*

Note. 2 of 3 items required for inclusion; R^2=.056; $R^2\Delta$ due to Band Membership=.003; ** p<.01; * p<.05

Table 34
Significant variables predicting senior students' personal social responsibility

Variable	**Simple *r***		**Step**	**Beta at Entry**		**Final Beta**	
Pre-college characteristics							
Female	0.077	**	1	0.077	**	0.047	ns
ACT (& SAT conv.)	-0.059	**	2	-0.054	*	-0.075	**
College Characteristics							
Volunteer Work	0.185	**	3	0.180	**	0.144	**
Learning Community	0.178	**	4	0.148	**	0.135	**
Research with Faculty	0.087	**	5	0.058	*	0.060	*
Fraternity/Sorority	0.086	**	6	0.060	*	0.065	**
Major							
Band Membership	0.091	**	7	0.106	**	0.106	**

Note. 5 of 7 items required for inclusion; R^2=.079; $R^2\Delta$ due to Band Membership=.010; ** p<.01; * p<.05; ns = not significant

Table 36
Significant variables predicting band first-year and senior engagement with diversity

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
Pre-college characteristics							
ACT (& SAT conv.)	0.135	**	1	0.135	**	0.152	**
First Generation	0.038	ns	2	0.078	*	0.073	ns
College Characteristics							
Volunteer Work	0.167	**	3	0.158	**	0.142	**
Internship	0.127	**	4	0.088	*	0.083	*
Major							
Education	0.075	*	5	0.089	*	0.089	*
Senior (v. First-Year)							

Note. 2 items required for inclusion; R^2=.064; ** p<.01; * p<.05; ns = not significant

Table 37
Significant variables predicting band first-year and senior higher order learning

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
Pre-college characteristics							
ACT (& SAT conv.)	0.133	**	1	0.121	**	0.112	**
College Characteristics							
Internship	0.188	**	2	0.180	**	0.148	**
Learning Community	0.101	**	3	0.095	*	0.079	*
Volunteer Work	0.135	**	4	0.084	*	0.078	*
Study Abroad	0.116		5	0.075	*	0.099	**
Senior (v. First-Year)	0.088	**	6	0.111	**	0.111	**

Note. 3 of 4 items required for inclusion; R^2=.082; ** p<.01; * p<.05

Table 38
Significant variables predicting band first-year and senior reflective learning

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
College Characteristics							
Research with Faculty	0.194	**	1	0.194	**	0.192	**
Volunteer Work	0.130	**	2	0.113	**	0.118	**
Study Abroad	0.112	**	3	0.079	*	0.066	ns
Major							
Science/Engineering	-0.027	ns	4	-0.084	*	-0.115	**
Professional	-0.096	**	5	-0.108	**	-0.108	**
Senior (v. First-Year)							

Note. 2 of 3 items required for inclusion; R^2=.073; ** p<.01; * p<.05; ns = not significant

Table 39
Significant variables predicting band first-year and senior personal social responsibility

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
College Characteristics							
Research with Faculty	0.170	**	1	0.170	**	0.133	**
Learning Community	0.169	**	2	0.138	**	0.125	**
Volunteer Work	0.132	**	3	0.101	**	0.101	**
Senior (v. First-Year)							

Note. 5 of 7 items required for inclusion; R^2=.057; ** p<.01

Table 40
Significant variables predicting non-band first-year and senior engagement with diversity

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
Pre-college characteristics							
Student of Color	0.083	**	1	0.083	**	0.085	**
ACT (& SAT conv.)	0.056	**	2	0.078	**	0.084	**
International Student	-0.039	*	3	-0.057	**	-0.053	**
College Characteristics							
Research with Faculty	0.163	**	4	0.152	**	0.130	**
Learning Community	0.126	**	5	0.102	**	0.098	**
Volunteer Work	0.100	**	6	0.061	**	0.075	**
Fraternity/Sorority	-0.046	**	7	-0.055	**	-0.052	**
Major							
Humanities	0.105	**	8	0.108	**	0.104	**
Senior (v. First-Year)	0.038	*	9	0.063	**	0.063	**

Note. 2 items required for inclusion; R^2=.070; ** p<.01; * p<.05

Table 41
Significant variables predicting non-band first-year and senior higher order learning

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
Pre-college characteristics							
International Student	-0.062	**	1	-0.062	**	-0.059	**
Female	0.060	**	2	0.058	**	0.054	**
College Characteristics							
Research with Faculty	0.156	**	3	0.163	**	0.130	**
Learning Community	0.155	**	4	0.128	**	0.113	**
Volunteer Work	0.121	**	5	0.077	**	0.071	**
Internship	0.117	**	6	0.064	**	0.070	**
Major							
Senior (v. First-Year)	0.106	**	7	0.128	**	0.128	**

Note. 3 of 4 items required for inclusion; R^2=.075; ** p<.01; * p<.05

Table 42
Significant variables predicting non-band first-year and senior reflective learning

Variable	Simple *r*		Step	Beta at Entry		Final Beta	
Pre-college characteristics							
College Characteristics							
Research with Faculty	0.162	**	1	0.162	**	0.143	**
Learning Community	0.133	**	2	0.105	**	0.093	**
Volunteer Work	0.114	**	3	0.083	**	0.093	**
Major							
Humanities	0.128	**	4	0.136	**	0.136	**
Education	0.017	ns	5	0.039	*	0.036	ns
Senior (v. First-Year)	0.062	**	6	0.073	**	0.073	**

Note. 2 of 3 items required for inclusion; R^2=.069; ** p<.01; * p<.05; ns = not significant

Table 43
Significant variables predicting non-band first-year and senior personal social responsibility

Variable	**Simple *r***		**Step**	**Beta at Entry**		**Final Beta**	
Pre-college characteristics							
ACT (& SAT conv.)	-0.107	**	1	-0.107	**	-0.086	**
Female	0.080	**	2	0.073	**	0.046	*
College Characteristics							
Learning Community	0.193	**	3	0.182	**	0.144	**
Volunteer Work	0.172	**	4	0.143	**	0.135	**
Fraternity/Sorority	0.086	**	5	0.066	**	0.064	**
Research with Faculty	0.097	**	6	0.059	**	0.071	**
Major							
Science/Engineering	-0.062	**	7	-0.041	*	-0.038	ns
Senior (v. First-Year)	0.053	**	8	0.065	**	0.065	**

Note. 5 of 7 items required for inclusion; R^2=.082; ** p<.01; * p<.05; ns = not significant

Table 45

Factor Analysis Summary

Component	2	3	4	5	6	7	8	9	10	11	12	13	14
Thinking critically and analytically	735												
Analyzing quantitative problems	715												
Writing clearly and effectively	695												
Using computing and information technology	687												
Speaking clearly and effectively	682												
Acquiring job or work-related knowledge and skills	593												
Working effectively with others	592												
Acquiring a broad general education	568												
Developing a personal code of values and ethics		725											
Understanding yourself		710											
Developing a deepened sense of spirituality		701											
Contributing to the welfare of your community		698											
Understanding people of other racial and ethnic backgrounds		692											
Voting in local, state (provincial), or national (federal) elections		621											
Learning effectively on your own		555											
Discussed grades or assignments with an instructor			741										
Used e-mail to communicate with an instructor			676										
Talked about career plans with a faculty member or advisor			630										
Discussed ideas from classes with faculty members outside of class			583										
Solving complex real-world problems	450		565										
Received prompt written or oral feedback from faculty			521										
Asked questions in class or contributed to class discussions			400										
Worked harder than you thought to meet instructor's expectations													
Discussed ideas from your readings or classes outside of class													
SYNTHESIZING and organizing ideas, information, or experiences				760									
ANALYZING the basic elements of an idea, experience, or theory,				734									
MAKING JUDGMENTS about value of information or methods				706									
APPLYING theories or concepts to practical problems				681									

Component	2	3	4	5	6	7	8	9	10	11	12	13	14
Examined strengths and weaknesses of your own views on a topic					782								
Tried to better understand someone else's views					780								
Learned something that changed the way you understand an issue					704								
Attended an art exhibit, play, dance, music, theater, performance													
Evaluate your entire educational experience at this institution						707							
If starting over, would you go to the SAME INSTITUTION?						706							
Relationships with FACULTY MEMBERS						638							
Relationships with OTHER STUDENTS						631							
Worked on a paper or project integrating various sources							724						
Prepared two or more drafts of an assignment before turning it in							651						
Included diverse perspectives (different races, religions, genders)								614					
Worked with classmates OUTSIDE OF CLASS on assignments								706					
Worked with other students on projects DURING CLASS								563					
Put together ideas or concepts from different courses													
Used an electronic medium (listserv, chat group, Internet, etc.)													
Had conversations with students of a different race or ethnicity									848				
Had conversations with diff. religion, ideology, personal values									821				
Made a class presentation							414		480				
Hours per 7-day week spent working for pay ON CAMPUS										618			
Worked with faculty members on activities other than coursework											509		
Tutored or taught other students (paid or voluntary)										428			
Participated in a community-based project												423	
Hours per 7-day week in co-curricular activities											419		
Hours per 7-day week caring for dependents living with you												754	
Hours per 7-day week commuting to class												635	
Hours per 7-day week working for pay OFF CAMPUS											577		
Hours per 7-day week preparing for class												778	
MEMORIZING facts, ideas, or methods from your courses													674
Exercised or participated in physical fitness activities													465
Hours per 7-day week relaxing and socializing													

Appendix B: Invitation Letter to College Marching Band Directors

Dear [Marching Band Director],

I am writing to request your assistance with a doctoral dissertation research project.

My goal is to identify some of the important characteristics that may be distinctive among college marching band students. It is hypothesized that college marching band students are more productively engaged than their peers within their respective campus communities. If a relationship between marching band participation and community engagement can be demonstrated, the results may be valuable in enabling us to facilitate greater campus support for our efforts.

In order to achieve this objective, I would be most grateful if you could allocate 10-15 minutes during a late season (November) rehearsal to have your marching band students complete an online survey on their laptops or tablets. The survey items will be drawn from the National Survey of Student Engagement. This survey has already been administered at the your institution, but I need to isolate the marching band members. All individual responses will remain confidential.

At your convenience, but preferably before September 1, could you please let me know if you would be willing to participate in this research project?

Thank you very much for your time and consideration.

Sincerely,

David

David P. Healey
Marching Band Director
Boston College
Chestnut Hill, MA 02467
healeyda@bc.edu

Appendix C: Marching Band Survey

College Marching Band Survey

You are being asked to participate in a study titled "The Benefits of Marching Band Participation in Promoting Student Engagement." You were selected to participate in this project because you are a member of a marching band at a Division-I athletic institution and the National Survey of Student Engagement was recently administered to freshmen and seniors at your school. All items included in the survey are used with permission from The College Student Report, National Survey of Student Engagement, Copyright 2001-12, The Trustees of Indiana University.

The purpose of the survey is to identify patterns of student engagement that may be distinctive among college marching band members. Specifically, a primary objective of the study is to determine the types and degrees of student engagement exhibited by marching band members in their respective campus communities.

The study will be conducted through this online survey. This is the only survey you will be asked to complete. The survey should take you approximately 15 minutes. Risks associated with the survey are minimal and may include some discomfort in answering some of the questions. There may be unknown additional risks.

There are no direct benefits to you, but you may feel gratified knowing that you helped further the scholarly work in this research area. You will not be compensated for the time you take to complete this survey. There are no costs associated with your participation.

The Principal Investigator will exert all reasonable efforts to keep your responses and your identity confidential. No personal identifiers will be collected at any time, and all resultant data will be kept on password-protected computers. Only the Principal Investigator and the Dissertation Committee Chair, Karen Arnold, will have access to the data file. If your confidentiality is breached, you may contact the Boston College Office for Research Protections at 617.552.4778 or irb@bc.edu. Please note that regulatory agencies, the Boston College Institutional Review Board, and Boston College internal auditors may review research records.

Your participation is voluntary. If you choose not to participate it will not affect your relationship with your primary institution or with Boston College. You are free to withdraw or skip questions for any reason. There are no penalties for withdrawing or skipping questions.

If you have questions or concerns about this research, or if you would like a copy of this consent form, you may contact the Principal Investigator, David Healey, at healeyda@bc.edu or 617.552.2065. If you have questions about your rights as a research participant, you may contact the Office for Research Protections, Boston College, at 617.552.4778 or irb@bc.edu.

The Boston College IRB has approved this protocol from November 2, 2012 - November 1, 2013.

If you agree to the statements above and agree to participate in this study, please press the "I consent to participate" button below.

Thank you.

- ○ I consent to participate
- ○ I decline to participate

Please indicate the institution in which you are a marching band member.

- ○ Appalachian State University
- ○ Auburn University
- ○ Boise State University
- ○ Central Michigan University
- ○ Clemson University
- ○ Colorado State University
- ○ Indiana University
- ○ Mississippi State University
- ○ Missouri State University
- ○ Northern Illinois University
- ○ Syracuse University

- University of Arizona
- University of Georgia
- University of Houston
- University of Illinois
- University of Kentucky
- University of Louisiana
- University of Louisville
- University of Miami
- University of Missouri
- University of Oregon
- University of South Carolina
- University of Wyoming
- Western Kentucky University
- Other

What is your current classification in college?

- Freshman/first-year
- Sophomore
- Junior
- Senior
- Graduate student
- Unclassified

How many years of Marching Band experience have you had including previous schooling and this year?

In your experience at your institution during the current school year, about how often have you done each of the following? (Please select the appropriate button):

	Very Often	Often	Sometimes	Never
a. Asked questions in class or contributed to class discussions				
b. Made a class presentation				
c. Prepared two or more drafts of a paper or assignment before turning it in				
d. Worked on a paper or project that required integrating ideas or information from various sources				
e. Included diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments				
f. Come to class without completing readings or assignments				
	Very Often	Often	Sometimes	Never
g. Worked with other students on projects DURING CLASS				
h. Worked with classmates OUTSIDE OF CLASS to prepare class assignments				
i. Put together ideas or concepts from different courses when completing assignments or during class discussions				
j. Tutored or taught other students (paid or voluntary)				

k. Participated in a community-based project (e.g., service learning) as part of a regular course	○	○	○	○
l. Used an electronic medium (listserv, chat group, Internet, instant messaging, etc.) to discuss or complete an assignment	○	○	○	○
	Very Often	Often	Sometimes	Never
m. Used email to communicate with an instructor	○	○	○	○
n. Discussed grades or assignments with an instructor	○	○	○	○
o. Talked about career plans with a faculty member or advisor	○	○	○	○
p. Discussed ideas from your readings or classes with faculty members outside of class	○	○	○	○
q. Received prompt written or oral feedback from faculty on your academic performance	○	○	○	○
r. Worked harder than you thought you could to meet an instructor's standards or expectations	○	○	○	○
	Very Often	Often	Sometimes	Never
s. Worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)	○	○	○	○
t. Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)	○	○	○	○
u. Had serious conversations with students of a different race or ethnicity than your own	○	○	○	○
v. Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values	○	○	○	○

During your current school year, how much has your coursework emphasized the following mental activities?

	Very much	Quite a bit	Some	Very little
a. MEMORIZING facts, ideas, or methods from your courses and readings so you can then repeat them in pretty much the same form	○	○	○	○
b. ANALYZING the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components	○	○	○	○
c. SYNTHESIZING and organizing ideas, information, or experiences into new, more complex interpretations and relationships	○	○	○	○
d. MAKING JUDGMENTS about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions	○	○	○	○
e. APPLYING theories or concepts to practical problems or in new situations	○	○	○	○

During the current school year, about how often have you done each of the following?

	Very Often	Often	Sometimes	Never
a. Attended an art exhibit, play, dance, music, theater, or other performance	○	○	○	○

b. Exercised or participated in physical fitness activities	○	○	○	○
c. Examined the strengths and weaknesses of your own views on a topic or issue	○	○	○	○
d. Tried to better understand someone else's views by imagining how an issue looks from his or her perspective	○	○	○	○
e. Learned something that changed the way you understand an issue or concept	○	○	○	○

Which of the following have you done or do you plan to do before you graduate from your institution?

	Done	Plan to do	Do not plan to do	Have not decided
a. Practicum, internship, field experience, co-op experience, or clinical assignment	○	○	○	○
b. Community service or volunteer work	○	○	○	○
c. Participate in a learning community or some other formal program where groups of students take two or more classes together	○	○	○	○
d. Work on a research project with a faculty member outside of course or program requirements	○	○	○	○
	Done	Plan to do	Do not plan to do	Have not decided
e. Foreign language coursework	○	○	○	○
f. Study abroad	○	○	○	○
g. Independent study or self-designed major	○	○	○	○
h. Culminating senior experience (capstone course, senior project or thesis, comprehensive exam, etc.)	○	○	○	○

Mark the button that best represents the quality of your relationships with OTHER STUDENTS at your institution.

	Unfriendly, Unsupportive, Sense of alienation 1	2	3	4	5	6	Friendly, Supportive, Sense of belonging 7
	○	○	○	○	○	○	○

Mark the button that best represents the quality of your relationships with FACULTY MEMBERS at your institution.

	Unavailable, Unhelpful, Unsympathetic 1	2	3	4	5	6	Available, Helpful, Sympathetic 7
	○	○	○	○	○	○	○

About how many hours do you spend in a typical 7-day week doing each of the following?

	0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30
a. Preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities)	○	○	○	○	○	○	○	○
b. Working for pay ON CAMPUS	○	○	○	○	○	○	○	○

c. Working for pay OFF CAMPUS	○	○	○	○	○	○	○	○
d. Participating in co-curricular activities (organizations, campus publications, student government, fraternity or sorority, intercollegiate or intramural sports, etc.)	○	○	○	○	○	○	○	○
e. Relaxing and socializing (watching TV, partying, etc.)	○	○	○	○	○	○	○	○
f. Providing care for dependents living with you (parents, children, spouse, etc.)	○	○	○	○	○	○	○	○
g. Commuting to class (driving, walking, etc.)	○	○	○	○	○	○	○	○

To what extent does your institution emphasize each of the following?

	Very much	Quite a bit	Some	Very little
a. Spending significant amounts of time studying and on academic work	○	○	○	○
b. Encouraging contact among students from different economic, social, and racial or ethnic backgrounds	○	○	○	○
c. Attending campus events and activities (special speakers, cultural performances, athletic events, etc.)	○	○	○	○

To what extent does your institution encourage contact among students from different economic, social, and racial or ethnic backgrounds?

- ○ Very much
- ○ Quite a bit
- ○ Some
- ○ Very little

To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in the following areas?

	Very much	Quite a bit	Some	Very little
a. Acquiring a broad general education	○	○	○	○
b. Acquiring job or work-related knowledge and skills	○	○	○	○
c. Thinking critically and analytically	○	○	○	○
d. Analyzing quantitative problems	○	○	○	○
e. Using computing and information technology	○	○	○	○
	Very much	Quite a bit	Some	Very little
f. Working effectively with others	○	○	○	○
g. Voting in local, state, or national elections	○	○	○	○
h. Learning effectively on your own	○	○	○	○
i. Understanding yourself	○	○	○	○

	Very much	Quite a bit	Some	Very little
j. Understanding people of other racial and ethnic backgrounds	○	○	○	○
k. Solving complex real-world problems	○	○	○	○
l. Developing a personal code of values and ethics	○	○	○	○
m. Contributing to the welfare of your community	○	○	○	○

How would you rate your entire educational experience at this institution?

- ○ Excellent
- ○ Good
- ○ Fair
- ○ Poor

If you could start over again, would you go to the same institution you are now attending?

- ○ Definitely yes
- ○ Probably yes
- ○ Probably no
- ○ Definitely no

What year were you born?

Please indicate your gender:

- ○ Male
- ○ Female

Are you an international student or foreign national?

- ○ Yes
- ○ No

What is your racial or ethnic identification? (select only one):

- ○ American Indian or other Native American
- ○ Asian, Asian American, or Pacific Islander
- ○ Black or African American
- ○ White (non-Hispanic)
- ○ Mexican or Mexican American
- ○ Puerto Rican
- ○ Other Hispanic or Latino
- ○ Multiracial
- ○ Other
- ○ I prefer not to respond

Did you begin college at your current institution or elsewhere?

- ○ Started here
- ○ Started elsewhere

Since graduating from high school, which of the following types of schools have you attended other than the one you are attending now? (Mark all that apply):

- ☐ Vocational or technical school
- ☐ Community or junior college
- ☐ 4-year college other than this one
- ☐ None
- ☐ Other

Thinking about this current academic term, how would you characterize your enrollment?

- ○ Full-time
- ○ Less than full-time

Are you a member of a social fraternity or sorority?

- ○ Yes
- ○ No

Are you a student-athlete on a team sponsored by your institution's athletics department?

- ○ Yes
- ○ No

What have most of your grades been up to now at your institution?

- ○ A
- ○ A-
- ○ B+
- ○ B
- ○ B-
- ○ C+
- ○ C
- ○ C- or lower

Which of the following best describes where you are living now while attending college?

- ○ Dormitory or other campus housing (not fraternity/sorority house)
- ○ Residence (house, apartment, etc.) within walking distance of your institution
- ○ Residence (house, apartment, etc.) within driving distance of your institution
- ○ Fraternity or sorority house
- ○ None of the above

What is the highest level of education that your parent(s) completed? (Mark one box per row):

	Did not finish high school	Graduated from high school	Attended college but did not complete degree	Completed an associate's degree (A.A., A.S., etc.)	Completed a bachelor's degree (B.A., B.S., etc.)	Completed a master's degree (M.A., M.S., etc.)	Completed a doctoral degree (Ph.D., J.D., M.D., etc.)
Father	○	○	○	○	○	○	○
Mother	○	○	○	○	○	○	○

Please indicate your major(s) or your expected major(s).

Please indicate your highest SAT and/or ACT scores.

SAT Reading

SAT Math

SAT Writing

ACT

Please select the item that best represents your role in the Marching Band.

- ○ Instrumentalist
- ○ Visual (Guard, Dance, etc.)
- ○ Other